wastewater. As has been demonstrated by bench-scale and pilot scale tests, some of which are summarized in these comments, this is an appropriate assumption for the Table 9 VOHAPs.

In 1985, EPA's Water Engineering Research Laboratory (now the Risk Reduction Engineering Laboratory) assembled available data on the fate of constituents identified as toxic substances under RCRA (Bishop, D.F., Memorandum to T.P. O'Farrell. Subject: Estimation of Removability and Impact of RCRA Toxics. September 26, 1985). This study was performed to support the Agency's Domestic Sewage Study to determine the fate of hazardous wastes in POTWs. This study included data on the sorption of organic chemicals, including a number of VOHAPs, on activated sludge. The data collected from a large-scale pilot study (50,000 gallons per day) for some of the VOHAPs regulated by the proposed rule are as follows:

Constituent	Percent of Influent Mass in Waste Activated Sludge
methylene chloride	<0.3
1,1-dichloroethene	<0.1
chloroform	<0.1
carbon tetrachloride	<0.1
1,2-dichloropropane	<0.1
trichloroethene	<0.1
1,1,2-trichloroethane	0.4
benzene	<0.1
1,1,1-trichloroethane	<0.1
chlorobenzene	<0.1
tetrachloroethene	0.2
tetrachloroethane	0.2
toluene	<0.1
ethylbenzene	<0.1

The results of two bench-scale studies reported in this same memorandum were consistent with these results. These bench-scale studies also evaluated the sorption of o-xylene, 1,2-dichlorobenzene, nitrobenzene,naphthalene, and 1,2,4-trichlorobenzene and showed that essentially zero percent of the influent mass of these substances was sorbed to the activated sludge. Only 1,2,4-trichlorobenzene, which was reported as <1 per cent sorbed, sorbed in a measurable quantity to the activated sludge.

During the OCPSF 12-plant study, which was conducted by EPA to collect data on toxic pollutants to support promulgation of the best available technology economically achievable (BAT) effluent limitations guidelines, EPA collected influent, effluent, and biological sludge data at each of the participating plants. These data can be found in the final engineering reports for each of these 12 plants, which are in the public docket for the OCPSF rule which was promulgated in 1987. Review of the data in these reports will demonstrate, for the VOHAPs that are the subject of this rule and are also CWA priority pollutants (the only volatile organic compounds tested in the 12-plant study), that zero sorption of the VOHAP to the biological solids was always found.

Recent pilot plant studies conducted in Canada support these data and confirm that sorption is not a significant removal pathway for VOHAPs in biological treatment systems (Parker, W.J. et.al., "Fate of volatile organic compounds in municipal activated sludge treatment plants," *Water Environment Research*, V.65, No.1, pp.58-65, January/February 1993). Based on a mass balance of spiked volatile organic compounds in the influent to the activated sludge unit, the sorption to the sludge was determined to be as follows:

Constituent	Per cent of Influent Mass in Waste Activated Sludge
dichloromethane (methylene chloride)	0.0
chloroform	0.0
1,1,1-trichloroethane	0.0
trichloroethene	0.0
toluene	0.0
tetrachloroethene	0.2
p-xylene	0.0
4-ethyltoluene	0.0
1,3,5-trimethylbenzene	0.0
1,4-dichlorobenzene	0.8

These studies demonstrate that EPA's assumption of zero sorption to the biological solids is appropriate for VOHAPs.

f. EPA's Selection Of The Monod Equation To Simulate Biodegradation Kinetics In The WATER7 Model Is Appropriate; However, Alternatives Should Be Allowed

The WATER7 model that EPA uses to simulate biodegradation and volatilization of VOHAPs in biological treatment units relies on the Monod equation for describing the kinetics of biodegradation. CMA supports the use of the Monod equation as the best general model currently available for describing biodegradation in wastewater treatment units.

CMA, in cooperation with the American Petroleum Institute (API), conducted a study of biodegradation prediction models in 1989 (Tischler/Kocurek, 1989, *Evaluation of the Biodegradation Predictive Equations in EPA's CHEMDAT6 Model*, API Publication No. 4487, Health and Environmental Science Department, Washington, D.C.).

This study, as the title implies, was directed toward evaluating a kinetic model that EPA had used in a predecessor of the WATER7 model. Three engineering academicians with strong credentials in biological treatment technology were asked to review the kinetics model in CHEMDAT6 and propose the most appropriate generalized kinetic model for use in predicting biodegradation in wastewater treatment units. Their recommendations were summarized in the API report.

The conclusion of this API study was that the Monod equation was the most widely-accepted, and the most generally applicable, kinetics model for predicting biodegradation of organic chemicals in acclimated biological treatment units. EPA adopted this recommendation in CHEMDAT7, which has become the WATER7 model formulation used to develop this rule.

Other predictive equations are also available but are not generally applicable, including second-order kinetic models and the Haldane equation for systems where a potential for substrate inhibition exists. The Haldane equation predicts the same kinetics as the Monod equation until the inhibitory concentration of a substrate is reached, at which point it predicts decreasing removal rates. The Haldane equation is not generally applicable to SOCMI biological treatment units, which are specifically designed and operated to prevent substrate inhibition from occurring. Pretreatment, equalization, complete-mix aeration basin design, and operation at extended solids retention times (SRT), which are all characteristics of SOCMI biological treatment processes, provide assurance that inhibition will not occur under the design range of influent characteristics. Only possible transient events, such as spills of high-concentration materials, present the possibility of inhibition of biological removal. Influent monitoring and spill control methods, such as emergency storage tanks, are used at SOCMI plants to prevent inhibition of the biological process from occurring.

CMA supports the use of the Monod equation as the best general biodegradation kinetics model for biological treatment units. It is appropriate for the uses to which EPA has assigned the WATER7 model for this rule -- including prediction of emissions potentials from biological treatment and demonstrating performance of biological treatment units on a site-specific basis. For unique site-specific situations, however, EPA should allow the use of alternate kinetics formulations such as used in the PAVE model when they are found to provide better verification of observed treatment unit performance.

4. The Proposed Plan Requirements For Routine Maintenance Wastewaters Are Too Prescriptive And Should Be Modified

The requirements proposed at §63.102(b)(1)(ii) stipulate adherence to a plan that describes the maintenance and housekeeping procedures that will be used to ensure proper management of wastewaters generated by emptying or purging of equipment during periods not associated with a process unit shutdown. However, with the guidance that the plan shall assure proper management of the wastewaters, comes prescriptive control requirements that are neither defined nor all inclusive of appropriate emission control options. The last sentence of §63.102(b)(1)(ii) states that: "The procedures shall ensure that routine maintenance wastewaters are either collected and recycled or are destroyed or are collected and managed in a controlled drain system." This sentence should be deleted from the rule.

Since the plan for managing maintenance wastewaters will be part of a plant's air permit, the stipulation that the procedures used will ensure proper management of the wastewater is more appropriate for controlling emissions than identifying all of the prescriptive emission control options as is done in the last sentence of §63.102(b)(1)(ii). By eliminating this sentence from the rule, each plant will have the flexibility of preparing a cost effective, site-specific management plan.

5. **The Point Of Generation Approach Defined In The Proposed Rule Will Be Very Difficult, If Not Impossible, To Implement At Some Plants**

EPA defines the point of generation as "the location where the wastewater stream exits the process unit component or product or feed storage tank prior to mixing with other wastewater streams or prior to handling or treatment in a piece of equipment which is not an integral part of the process unit." (§63.111). EPA's reasoning for this definition is to prevent dilution that will make wastewater streams more difficult to treat and that may allow some streams to be diluted so that they are below the concentration cutoffs requiring control. Preamble, p. 62644.

Many, if not most, modern SOCMI process units combine some or all wastewater streams in a suppressed piping system before they are discharged to the process sewer system. EPA has defined the point of generation in a way that will make it difficult, if not impossible, for some facilities to identify regulated wastewaters without physically reconfiguring piping systems (which may often require unit shutdown) to allow measurement of flows and sampling of wastewaters to separate Group 1 and 2 wastewaters.

CMA believes that EPA's concern for dilution is misplaced. Since the proposed regulation requires the separation of noncontact cooling water and process wastewaters (they are defined and regulated by two different methods), it is unlikely that a significant number of SOCMI manufacturing processes will generate a sufficient volume of non-VOHAP containing process wastewater in a process to dilute one or more Group 1 wastewater streams enough to render the total process wastewater a Group 2 waste (which would exclude it from regulation). EPA should review the SOCMI process flow diagrams shown in Appendix S of the *Contractors Engineering Report* prepared for the OCPSF effluent limitations guidelines (EPA, *Contractors Engineering Report, Analysis of Organic Chemicals and Plastics/Synthetic Fibers Industries*, Appendix S, Contract No. 68-01-6024, Effluent Guidelines Division, November 16, 1981) which is available in the OCPSF records. These process flow diagrams show the sources of wastewater generation in major SOCMI processes and demonstrate that most SOCMI processes that generate organic-HAP containing wastewaters have one or two significant volume wastewater streams, which are what should be focused on to determine whether the wastewater HON requirements are applicable.

a. EPA's Concern For Dilution And Combination Of Waste Streams Is Based On The Erroneous Assumption That Equilibrium Between Liquid Phase And Vapor Phase VOHAP Occurs In Collection Systems

EPA's calculations of potential emissions from wastewater collection and treatment systems are all based on the assumption that VOHAPs achieve equilibrium between the liquid phase and vapor phase in wastewater collection and treatment systems. Thus, the Agency assumes that the total mass of VOHAP in wastewater controls the emission rates, and that the concentration of the VOHAP in the wastewater does not affect the emissions. As has been demonstrated by studies commissioned by CMA, this assumption is very inaccurate for the typical wastewater collection and treatment system.

When vapor-liquid equilibrium is not achieved in a collection or treatment unit, the concentration of VOHAPs in the wastewater controls the emission rate. At lower VOHAP concentrations in the wastewater, the driving force for volatilization to the vapor phase is reduced and the total amount of emissions are correspondingly decreased. Therefore, in a real-world collection system a decrease in wastewater VOHAP concentration due to mixing with other wastewaters will result in a decrease in VOHAP emissions from the collection and treatment system. Thus, the argument that the point of generation must be at the first point where a wastewater exits the manufacturing process, rather than at the first point where contact to the atmosphere occurs, is specious and is not a justification for EPA's point of generation definition. Locating the point of generation at the first place in a collection/treatment system where air emissions occur will not result in increased emissions of VOHAP, and actually could result in decreases in VOHAP emissions in real systems that are not in vapor-liquid phase equilibrium as incorrectly assumed in EPA's calculations.

b. The Point Of Generation Should Be Defined As The First Point Downstream Of A Process Unit Where Air Emissions Could Occur

From an air emissions standpoint, it is intuitive that the first point in a wastewater collection system where VOHAP losses are of concern is the point in the system at which emissions can first occur, i.e., the first potential for contact with the atmosphere. In a completely emissions-suppressed piping system, which is common in SOCMI processes up to the point at which the wastewater is discharged to the facility process sewer, there is no opportunity or potential for atmospheric emissions. Thus, if two or more wastewater streams are combined before they are exposed to the atmosphere, it is the concentration of VOHAPs in the combined waste which represent the potential to emit at the first point where the wastewater stream can contact the atmosphere.

CMA recommends that EPA define the point of generation for the wastewater section of the HON rule as the first point in the wastewater collection system where emissions to the atmosphere are possible. This is an unambiguous definition which will allow direct sampling and flow monitoring of the discharge, in most cases, and reflects the real potential for emissions to the atmosphere from wastewaters.

c. The Point Of Generation Definition Of "Integral To The Process" Should Recognize Health, Safety, And Other Regulatory Limitations

Because it will often be necessary to monitor flow and sample a wastewater stream to make the Group 1 and 2 determinations, consideration of health, safety, and other regulatory limitations is appropriate in defining what constitutes an integral part of a process unit. If monitoring and sampling of a wastewater to meet EPA's point of generation definition would endanger worker health and/or safety, then it should be acceptable to move the point of generation to a downstream point on the wastewater line which does not represent a dangerous situation. For example, if the piping of a process sewer system is designed such that two wastewater streams combine at a pipe junction 20 feet above the ground, and then the combined streams discharge through a single closed pipe into the process sewer system, the piping should be considered integral to the process. Another situation would be where the process wastewater temperature or pressure is too great for safe sampling. OSHA regulations may preclude flow monitoring and sampling of wastewater at points of generation as defined in the proposed rule, because of the presence of adjacent equipment or wastewater characteristics that could endanger worker health and safety.

In many situations, regulatory requirements govern the operations of process units. If a process unit control device is needed to meet permit limitations, the process unit cannot be operated without the device. Companies cannot risk knowing violations of permit limits by shutting off such devices, which are therefore integral to the process.

The point of generation definition should specifically include provisions that allow worker health and safety, and other applicable state and federal regulations, to be considered when defining the point of generation of wastewater in a SOCMI process.

d. As An Alternative Approach To The Point Of Generation Designation, EPA Should Adopt The Concept Of When A Waste Is "Destined For Disposal," Which Is Used In The RCRA Rules

The current definition of point of generation will regulate many wastewaters at locations within a process area that have no potential for emitting VOHAPs to the atmosphere. Besides creating an administrative nightmare for plants in terms of identifying and characterizing these internal (to the process) wastewaters, it will identify as regulated units equipment that is used for recycle of wastewater to the production process, which is otherwise exempt from the treatment standards under §63.138(c)(1)(i), even if the entire recycle system is suppressed so that the potential to emit is negligible. This represents a case where the proposed HON regulation needlessly requires a facility to comply with the rules for no environmental benefit.

CMA believes that the point of generation definition can be considerably simplified by using the approach that is used to define a solid waste in the hazardous waste regulations adopted under the statutory authority of RCRA. The location at which a material becomes a solid waste in these rules is defined as the point where the waste is destined for disposal (40 CFR 261.2). Materials that are recycled to the process without reclamation are not deemed to be solid wastes under this definition.

Substitution of the "destined for disposal" concept into the HON regulations for the "integral to the process" portion of the definition of point of generation would considerably simplify the identification of a regulated wastewater, without relaxing the rule such that the potential for emissions is increased. CMA recommends that EPA make this change in the definition of the point of generation for determining at what location in the process wastewaters are regulated by the HON.

6. **The Source Treatment/Waste Stream Exemption Should Be Increased From 1 Mg/yr to 2 Mg/yr To Be Consistent With The Recently Adopted NESHAP For Benzene**

The proposed regulation provides a source-wide exemption from the control and treatment of Group 1 wastewater streams if the sum of the VOHAP mass flow rates for all such streams is less than or equal to 1 megagram per year (Mg/yr). §63.138(c)(5). The total mass quantity of 1 Mg/yr for total VOHAP is an EPA policy decision, and is inconsistent with the exemption criteria used in the benzene NESHAP rule.

EPA has recently adopted its revised benzene NESHAP for waste treatment operations, which has an identical source-wide exemption provision but with a mass flow rate maximum limit of 2 Mg/yr benzene. This 2 Mg/yr cutoff level is based upon consideration of the difficulty of implementing controls for small sources of benzene in the waste management system compared to the potential emissions that this exempted total mass could generate.

Since EPA has just recently completed the revisions of the benzene NESHAP for waste operations, and given thorough consideration to the selection of the exemption cutoff level, there is no reason not to use the same 2 Mg/yr exemption level for VOHAPs in SOCMI wastewater management systems. In fact, since benzene is also a regulated VOHAP in the proposed SOCMI wastewater HON, the two exemption levels (the existing benzene NESHAP and the proposed wastewater HON) are currently in conflict.

CMA requests that EPA reconcile the two rules by adopting the 2 Mg/yr as the source-wide cutoff for the SOCMI wastewater HON. This exemption level would assure that major potential emission sources are controlled, while minimizing the need to test, collect, and treat de minimis sources of VOHAPs.

7. **<u>The Leak Identification Criteria For Recycle Cooling Water Systems Need To Be Clarified And Changed To Make Them More Rational In Terms Of The Source Potential</u>**

The proposed rule requires noncontact cooling water to be sampled for VOHAPs at the inlet and exit of each heat exchange system that is used to cool process equipment. §63.102(b)(2). Such monitoring is to be performed monthly during the first 6 months that the rule applies, and quarterly thereafter.

a. CMA Supports The HON Provision That Exempts From Monitoring Noncontact Cooling Water Systems Which Operate At Water Pressures Which Exceed Process Fluid Pressures

In some noncontact cooling water systems, the pressure on the water side of the heat exchanger exceeds the pressure in the process fluid being cooled. In such cases, any leaks would be of water into the process rather than hydrocarbon into the water, and there will be no potential for air emissions from the cooling water. CMA supports the exemption for such cooling systems at §63.102(b)(4).

b. The Proposed Noncontact Cooling Water Sampling Requirements Are Unclear And Could Be Interpreted To Require Sampling Every Heat Exchanger In VOHAP Service At A SOCMI Process Plant

The proposed sampling requirements require sampling at the inlet and outlet of each heat exchanger system. EPA defines heat exchanger system in §63.101 as a cooling tower system or a once-through cooling water system. CMA believes that EPA's intent is to require sampling at the inlet and exit of cooling towers rather than at each heat exchanger within a cooling system. CMA is concerned that the language in the proposed rule could be misinterpreted by regulatory personnel to require testing at each heat exchanger, since cooling systems are not typically referred to as heat exchanger systems. There are many heat exchangers in the typical SOCMI plant, and some of them are essentially inaccessible for routine testing. Routine sampling of each heat exchanger would be impractical at most SOCMI plants.

The wastewater HON should clarify that noncontact cooling water is to be routinely sampled at the cooling tower inlet and outlet for recirculating cooling water systems.

c. The Wastewater VOHAP Concentration That Is Used To Identify A Leak In A Cooling Water System Should Be Based On The Potential To Emit

SOCMI cooling water systems differ greatly in the amount of water used for cooling. Thus, the potential to emit VOHAPs that leak into the cooling water is dependent upon the amount of water used for cooling (the recirculating water flow in recycle systems; the flow in once-through systems). The proposed leak detection action criteria at §63.102(f)(2)(iv) may be appropriate for cooling systems that use large volumes of water for heat exchange —— they are unnecessarily restrictive for smaller cooling systems since the potential to emit significant amounts of VOHAP is proportionately smaller.

CMA recommends that stepped/scaled action levels be established for identifying VOHAP leaks in recirculating cooling water systems. These action levels should be linked to the quantity of VOHAP emissions that are required to identify the cooling tower as a major source. CMA suggests the following action levels as a function of recirculating water volumes in recycle cooling systems:

Design Cooling Water Recirculation Rate (gpm)	Action Level (ppmw)
≥40,000	1
25,000-40,000	2
10,000-25,000	4
5,000-10,000	8
1,000-5,000	16
<1,000	40

d. **Once-through Cooling Water Systems Should Not Be Regulated Under This Rule, Since Leaks Are Already Controlled By NPDES Permit Requirements**

The proposed rule applies the VOHAP testing and leak repair requirements to both recirculating and once-through cooling water systems. Leaks in once-through cooling water systems are already regulated by National Pollutant Discharge Elimination System (NPDES) permit requirements issued under the authority of the Clean Water Act (CWA). These permits typically require monitoring of the once-through cooling water and allow a net increase of 5 mg/L of total organic carbon (TOC) for example, See 40 CFR 419.12(d)]. An increase above this concentration represents a permit violation subject to administrative and civil penalties. Therefore, SOCMI plants that use once-through cooling water routinely monitor these discharges and repair leaks before the net increase of five mg/L TOC occurs.

CMA believes that the existing NPDES permit requirements on once-through cooling water provide sufficient control to minimize significant VOHAP emissions due to leaks in such systems. Therefore, application of the proposed HON cooling system requirements to once-through cooling water is redundant regulation. CMA urges EPA to exempt once-through cooling water systems from the HON regulations.

e. **The Agency's Proposed 1 Percent Leak Criterion For Noncontact Cooling Water Is Inconsistent With The Precision Of Its Analytical Methods And Should Be Deleted**

EPA proposes two criteria for identifying a leak in noncontact cooling water systems by comparing inlet and outlet sample analyses: (1) a statistically significant increase of one part per million (presumably by weight although not stated in the rule) at a 95 per cent confidence level; or (2) a statistically significant increase of at least one percent at the 95 percent confidence level.

EPA should use the analytical method performance data to set the trigger concentration increase for identifying a leak in a noncontact cooling water system. An arbitrary selection of the incremental concentration increase allowed, such as has been made for this proposal, may result in numerous false positive identifications due to the inherent uncertainty of the approved analytical methods.

With respect to the second criterion, a one per cent increase in concentration, at the low levels of VOHAPs that will be present in noncontact cooling waters this criterion is meaningless. At concentrations of one mg/L, even the best purge and trap gas chromatography analytical methods have single operator precision (one standard deviation) of about nine to ten per cent. With this level of inherent analytical uncertainty, it will be simply impossible to identify a one per cent increase at the low concentrations of VOHAPs that will be found in noncontact cooling water. This criterion should be dropped from the final rule and only the incremental concentration increase criterion should be used to identify a leak.

f. The Regulation Requires Testing For Total HAP Concentrations In Cooling Water —— This Is Inappropriate Given The Scope Of This Rule

CMA is concerned that treatment chemicals used in recirculating cooling systems and variations in intake water quality in once-through cooling systems could interfere with leak detection. While we recognize the importance of a simple analytical method for sampling cooling water systems, we do not believe that the rule should specify total HAPs as the basis for implementing leak control requirements. CMA believes that the rule should specify that the action level is based on the VOHAPs in Table 9 of the proposed rule, not all HAPs.

The rule should allow a surrogate parameter, such as TOC, to be used for routine testing. If the surrogate parameter identified a possible leak, then it would be the facility's responsibility to verify whether or not the VOHAP action level for the cooling system was exceeded. This approach would allow a facility to use a simple analytical methodology for routine testing, and would only require the use of a more sophisticated test method when the surrogate indicates a possible leak of VOHAPs to the cooling water.

g. Cooling Towers Should Be Regulated Under A Specific MACT Rule Rather Than In Each Separate Source Category

EPA is scheduled to promulgate a rule for controlling HAP emissions from cooling towers. Since such a rule is forthcoming, CMA believes that it makes little sense and is administratively inefficient to adopt separate cooling tower requirements in the SOCMI wastewater HON rule, as well as in other NESHAP source categories. CMA urges EPA to delete the proposed cooling tower requirements from the SOCMI HON rule, and reserve regulation of these units for the forthcoming cooling tower HON.

8. <u>CMA Supports The Application Of Engineering Judgement For Wastewater Group Determinations</u>

EPA has proposed to allow facilities to use engineering judgement to make wastewater Group 1 and Group 2 determinations in §63.144(b)(1). CMA strongly supports this proposal, as well as proposed §63.144(b)(2) which allows use of bench and pilot-scale data to make Group 1 and Group 2 determinations.

9. EPA Should Revise Certain Definitions In The Proposed Rule To Better Identify The Units, Process, And Operations That It Is Regulating

a. EPA Must Explicitly Define The Term VOHAP As The Organic HAPs Found In Table 9 Of The Rule

Although the Agency uses the term VOHAP throughout the wastewater sections of the HON to distinguish those organic HAPs that are regulated by the wastewater provisions from other organic HAPs identified in the rule, it never specifically identifies the VOHAP compounds as the chemicals listed in Table 9 of the rule. Although it is clear from the regulatory control and monitoring requirements that the Table 9 organic HAPs and the term VOHAPs are synonymous, the regulations should specifically identify the Table 9 compounds as VOHAPs. The term VOHAP should then be consistently used throughout the wastewater regulations to identify those compounds that are subject to the regulatory requirements.

b. The Definition Of Residuals Should Be Limited To Materials Derived From Treatment Of Group 1 Wastes; Should Include A De Minimis VOHAP Concentration; And Should Require Treatment Of No More Than 99 Percent Of The Mass Removed From The Group 1 Waste stream

EPA defines "residual" as "any material containing organic hazardous air pollutant, that is removed from a wastewater stream by a waste management unit or treatment process that does not destroy organics" §63.111. This definition is much too broad and will include settled inorganic solids, polymers, and similar inert materials which may contain only a trace amount, if any, of VOHAPs. For example, typical residuals from wastewater treatment systems include inorganic grit and settleable solids collected in sumps and treatment units and filter media used to remove suspended solids. Concentrations of

VOHAPs in such materials will typically be low —— in such cases a 99 percent removal requirement for residuals as required under §63.138(g) will be unachievable. Likewise, such residuals cannot be returned to the manufacturing process.

EPA should define residuals by using the same criterion that it has used to identify Group 1 wastewaters in the proposed rule —— a total VOHAP concentration of greater than 1000 ppmw. The total VOHAP concentration used to define a residual should be based only on those HAPs listed in Table 9 of the rule.

c. The Definition Of Process Fluid Should Be Separated From The Definition Of Wastewater

Process fluids are described in the wastewater definition at §63.101 (57 Fed. Reg. 62688-9). Process fluids are not wastewaters unless they have an aqueous fraction and are disposed. The explanation of what constitutes a process fluid should be presented in a separate definition, and the description of process fluids should be deleted from the wastewater definition.

d. EPA's Definition Of Wastewater Incorrectly Regulates Process Fluids

The wastewater definition in §63.101 explicitly includes "process fluids," which are further defined as "any raw material, intermediate product, finished product, by-product, or waste product". CMA does not believe that it is EPA's intent to regulate the SOCMI manufacturing process through the HON wastewater provisions, yet that is exactly what this definition does. In fact, as currently written, a plant would have to identify every organic fluid in the process as a wastewater, which is absurd. The inclusion of process fluids in the wastewater definition must be deleted.

CMA believes that the definition of a wastewater should include a fraction of water that must be present. For example, the RCRA hazardous waste rules define a wastewater as containing < 10 per cent TOC. A similar cutoff is needed for this rule to prevent process liquid streams from being identified as wastewaters. EPA has elsewhere in the rule defined wastewater residuals, so there is no need to include such materials in the definition of wastewater as is currently done.

All of the examples given in the definition of process wastewater clearly demonstrate that the regulated liquid is intended to be water or aqueous streams that have directly or indirectly contacted process fluids. CMA recommends that the existing definition of wastewater at §63.101 be modified as follows (underlined text represents additions; deletions are noted; unchanged portions of original text are not shown):

> "Wastewater means...water or <u>aqueous</u> process fluid<u>s</u> discharged..., and maintenance wastewater.
>
> (1) Organic hazardous air pollutant-containing water or <u>aqueous</u> process fluid<u>s</u> contain<u>ing</u> at least 5 parts per million by weight...and any flow rate <u>which are discharged into an individual drain system</u>. [Delete last sentence describing process fluids.]
>
> (2) Unchanged.
>
> (3) Maintenance wastewater is...draining of <u>aqueous</u> process fluids or <u>draining water used to wash process fluids</u> from...process unit shutdowns.
>
> (4) Unchanged"

The recommended changes provide a consistent definition of wastewater for those facilities that are subject to the regulations.

e. The Proposed Definitions Of Wastewater And Wastewater Stream Are Redundant And Confusing

The proposed rule defines wastewater at §63.101 and a wastewater stream is defined at §63.111. The wastewater provisions of the rule use the definitions interchangeably. There is no need to define both of these terms —— the definition of wastewater is sufficient along with using the modifiers Group 1 and Group 2. The current definition of "wastewater stream" can be interpreted to include everything in the facility without an exemption, including non-SOCMI streams. CMA believes that this is not EPA's intention. The phrase Group 1 or Group 2 wastewater can be substituted throughout the text to replace the term wastewater stream. This will make the rule clearer and less subject to misinterpretation.

Wastewater streams are defined as "any VOHAP-containing liquid that results from either direct or indirect contact of water with organic compounds." §63.111. Examples of wastewater streams given in the proposal include steam trap condensate and reflux.

EPA's definition of wastewater stream as an VOHAP containing liquid could be construed to include a process stream that has been in contact with water. CMA does not believe that it is the Agency's intent to regulate process streams. However, the proposal includes reflux as an example of a wastewater stream —— reflux lines in distillation operations are clearly process lines that should not be included in the wastewater provisions. Steam trap condensate, another example given in the rule, also seems out of place. Unless the steam has been in direct contact with the process chemicals, it will be completely free of VOHAPs since boiler feed water is carefully treated to remove impurities to protect boiler tubes and steam lines from scaling.

Both of these examples of wastewater streams given in the proposed definition are subject to misinterpretation. They should either be deleted from the rule or more carefully crafted to accurately reflect what they are trying to identify. As an alternative to deleting the definition of wastewater stream, EPA could modify the definition by adding the phrase "destined for disposal" to assure that in-process streams are not inadvertently regulated.

If it is not deleted, CMA recommends that the definition of wastewater streams be revised as follows:

> "Wastewater Stream" means any <u>VOHAP</u>-containing <u>aqueous</u> liquid or material separated from the liquid that results from either direct or indirect contact of water with organic compounds <u>and is destined for disposal</u>. The characteristics of wastewater stream (e.g., flow rate, VOHAP concentration) are determined for the point of generation. <u>For the purpose of this definition the following streams are excluded: cooling water blowdown, residuals, safety showers, eye washes, water from fighting fires, spills, maintenance wastewater, maintenance turnaround wastewater, steam trap condensate, once-through cooling water and landfill leachate</u>.

f. The Definition Of Wastewater Should Include The Term Volatile When Describing The Concentration Of HAPs That Identify A Regulated Stream

EPA's definition of wastewater at §63.101 describes it as "organic hazardous air pollutant-containing water." It further defines organic hazardous air pollutant-containing water or process fluids to "contain at least 5 parts per million by weight total organic hazardous air pollutant..." To be consistent with the proposed regulation, the concentration cutoff should define wastewater in terms of "total volatile organic hazardous air pollutants."

g. The Proposed Definition Of An Individual Drain System Is Overly Inclusive And Needs To Be Modified

An individual drain system is defined as "the system used to convey wastewater streams from a process unit, product or feed storage tank, or waste management unit to a waste management unit". §63.111. The definition also states that "the individual drain system shall be designed to segregate the vapors within the system from other drain systems." Segregated storm sewers are specifically excluded from this definition. The interrelated definitions of individual drain system and wastewater stream are also so broad that they will cause confusion as to the extent or boundaries of the individual drain system. For example, how far up the process does the individual drain system extend?

The requirement that vapor spaces of individual drain systems carrying VOHAPs be separated from the vapor space in other drain systems will be problematic for many facilities. At many SOCMI plants, storm water from process areas and process-related areas will enter the process sewer system, which EPA is defining as the individual drain system. The current definition would apparently even require segregation of the vapor spaces of sewers carrying non-SOCMI wastewaters from vapor spaces of sewers in SOCMI service. This level of segregation is simply going to be impractical in many SOCMI facilities.

The definition of an individual drain system must be modified to more accurately reflect realities at SOCMI plants. The revised definition should allow the combination of storm water, Group 2 wastewaters, and non-SOCMI wastewaters in collection systems.

CMA recommends the following definition of individual drain system at §63.111:

> Individual drain system means all process drains and junction boxes, together with their associated sewer lines and other junction boxes, manholes, sumps, and lift stations, down to the receiving waste management unit. Drains and sewer systems that feed an individual drain system are exempt from this definition if the system is designed to isolate the vapor connection between the two systems."

This definition is consistent with the definition of individual drain systems in the new source performance standards for petroleum refinery wastewater systems at 40 CFR 60.691 (Subpart QQQ).

h. The Wastewater Regulations Should Focus On Significant Air Emissions Sources, And Intermittent And Small Sources Of Wastewater Emissions Such As Maintenance And Maintenance-turnaround Wastewaters Should Be Excluded From The Regulations

The proposed regulations treat wastewaters that result from equipment maintenance in two ways: (1) wastewater generated during maintenance turnarounds, i.e., process unit shutdown; and (2) routine maintenance when the process unit is operating.

The proposed rule requires facilities to prepare descriptions of procedures that will be implemented to control emissions of HAPs during maintenance turnarounds and repairs. § 63.102(b). The startup, shutdown, and malfunction plan (SSMP) at yet to be proposed §63.102(b)(1) and implementation actions are resource-intensive when compared to the significance of these operations as VOHAP emission sources. An even larger issue, however, is the management of wastewaters generated during routine maintenance while the manufacturing unit is operating. These routinely-generated maintenance wastewaters must be managed as process wastewaters. These routinely generated maintenance wastewaters must be managed in a manner equivalent to Group 1 process wastewaters.

EPA's analyses of wastewater VOHAP emissions did not include emissions from either routine or turnaround maintenance wastewaters. The entire analysis EPA used to support the wastewater HON focused on process wastewater treatment systems (Volume 1C, EIS). Therefore, EPA has made no showing that organic HAP emissions from wastewaters generated during routine maintenance and repair are even marginally significant. Notwithstanding this, the Agency has proposed onerous and complicated regulations that plants must follow for these intermittently-generated, low-volume wastewaters.

CMA does not believe that the proposed controls on routinely-generated maintenance and maintenance-turnaround wastewaters are cost-effective and can be technically supported on the basis of the potential generation of HAP emissions. The requirement to manage these low-volume wastewaters will be very costly to implement relative to the cost-effectiveness of the controls.

CMA believes that all maintenance wastewaters and maintenance-turnaround wastewaters should be classified as maintenance wastewaters, and should be exempted from these rules.

10. <u>EPA Requires Uusing Method 304 Aand Tthe WATER7 Mmodel Tto Demonstrate That Biological Treatment Is Equivalent To The Steam Stripping RCT. This Approach Is Difficult To Implement And Is Fundamentally Flawed In Several Respects And Should Be Deleted From The Rule</u>

Proposed §63.138(h)(2) specifies that biological treatment systems that meet the mass removal requirements of §63.138(b)(iii)(C) do not have to be covered and vented to a control device. To demonstrate that the mass removal requirements are achieved, the methods at §63.145(i) must be used. For biological treatment units, §63.145(i)(2) requires that proposed Method 304 (Part 63, Appendix A) be used to estimate a site-specific and HAP-specific biodegradation coefficient for use in the WATER7 model. The WATER7 model is then to be used to estimate the VOHAP mass destruction rate for comparison with the RCT.

In addition to these comments, a report from a CMA contractor (Enviromega/ENSR) discussing concerns with Method 304 is attached as Appendix Q.

a. **The Method 304 Lab Test Does Not Develop Sufficient Biodegradation Kinetics Information To Allow Proper Application Of The WATER7 Model**

The biodegradation kinetics in the WATER7 and CHEMDAT7 models are based on the Monod equation, a hyperbolic relationship that relates substrate removal rates to substrate concentration and active biological solids concentration (represented by mixed liquor suspended solids). The form of this equation used in the models is:

$$Dc/dt = K_{max} \; (_{C)(X)/(Ks + C)}$$

where: Dc/dt is the rate of organic compound removal, g/sec;

K_{max} is the maximum rate of removal, g/sec-g biomass;

K_s is the half saturation constant (the concentration at which the removal rate is 1/2 the maximum rate, g/m^3);

C is the organic compound concentration, g/m^3; and

X is the biomass concentration, g/m^3.

When the concentration of substrate in the biological reactor is low compared to the half-saturation constant ($K_s >> C$), which is the typical operating state for a biological treatment system, this equation reduces to:

$$Dc/dt = (K_{max}/K_s)(C)(X)$$

which is a first order reaction with respect to C and X, and K_{max}/K_s is a quasi-first order reaction constant which EPA defines as K1. Appendix A, p. 62790. EPA relies on this form of the equation to establish its methodology for determining site-specific HAP-specific reaction rates with Method 304. The method is designed to measure the quasi-first order constant K1 from a bench scale experiment, and use this value in the WATER7 model for the specific compound being studied to estimate the destruction and emission rates for the full scale system, using the Monod equation.

The fundamental assumption in EPA's methodology is that the compound-specific values of K_s in the WATER7 model are constants, are always very large compared to C, and are accurately selected. However, the half-saturation "constant" Ks is not a constant, and will vary depending upon the specific types of organisms present and their physiological state. For example, Table 1 in the book by Pitter, P. and Chudoba, J.

(*Biodegradability of Organic Substances in the Aquatic Environment*, CRC Press, Inc., Boca Raton, Florida, 1990) presents the following measured Ks values for glucose:

microorganism (genus)	$K_{s\ (mg/L)}$
Escherichia	0.008
Escherichia	4.0
Saccharomyces	25.0
Aspergillus	5.0

Thus, measured K_s values for a readily biodegradable substrate may vary by 4 orders of magnitude and are a true constant only for the specific waste and treatment system operating state being examined. This means that the quasi-first order constant is not a true constant, and may influence the estimated biodegradation rate in the low concentration range of organic substrate. Similarly, K_1 also is a function of the waste composition and bacterial species present in the biological reactor (Pitter and Chudoba, 1990).

There is also a significant problem with proposed Method 304 that will result in underestimation of the first order biodegradation coefficient calculated following the specified procedures. Paragraph 2.2.1 of the method specifies that if the effluent concentration of a target compound is less than the quantitation limit for that compound, the quantitation limit shall be used in the calculation of the first order biodegradation coefficient. Since most SOCMI biological treatment systems operate such that the average effluent concentration of most specific organic contaminants are below the analytical quantitation limit, this will be a common situation for the Method 304 test since it is designed to simulate the performance of the full-scale treatment system. Since the true effluent concentration may be substantially lower than the quantitation limit, and possibly even zero, use of the quantitation limit to calculate the kinetic coefficient in such cases will always underestimate the true biodegradation rate. The only alternative available to partially account for this bias in the calculation of the kinetic coefficient is to use one-half of the quantitation limit in the calculation when the measured effluent concentration is less than the quantitation limit. This assumes that the concentrations below the quantitation limit are normally distributed between zero and the quantitation limit, and that the mean/median of the distribution is the best estimate of the concentration in this range.

It is apparent that an experiment to determine biokinetic coefficients that fit the Monod equation for a specific wastewater composition and biomass should measure both K_{max} and K_s. The current methodology, which assumes that K_s is a constant that is always much greater than the bulk liquid concentration of VOHAP in the biological reactor, C, may be inaccurate. Therefore, although Method 304 and WATER7 may reasonably estimate biodegradation removals of specific organic compounds on a global scale (i.e., for range of treatment systems and wastewater characteristics), they may not be satisfactory for accurately measuring site-specific biodegradation rates for specific VOHAPs.

There are several ways that this problem can be solved. Method 304 can be expanded to measure K_s, which will require batch system studies at a range of VOHAP concentrations for a specific wastewater, and which will make the method even more complex and cumbersome than the current proposal. Alternatively, WATER7 can be used directly with its default biodegradation kinetic data and site-specific biological treatment system design and operation data to predict emissions when experimental data are unavailable. This approach could be supplemented with kinetic data for specific VOHAPs estimated using the chemical structure-biodegradation methodology developed by Tabak and Govind ("Development of Predictive Models for Structure-Biodegradation Relationship with Respirometrically Derived Biodegradation Kinetics," *Air and Waste Management Assoc.*, Paper 92-29.05, 85th Annual Meeting & Exhibition, Kansas City, 1992). This approach has been shown to give estimates of K_{max} and K_s that are very representative of experimental values.

Finally, if an experimental method to determine mass removals by biodegradation is necessary, EPA should consider a method that directly measures air emissions and effluent concentrations and eliminates the use of a computer model. This approach is discussed later in these comments.

As stated earlier in these comments, CMA believes that enhance biological treatment should be specified as RCT for all biodegradable VOHAPs. In this case, no specific performance testing should be required if the specified design and operating characteristics of the biological treatment RCT are met. For those compounds for which biological treatment is not designated as RCT, or if the biological treatment system does not meet the design and operating characteristics specified for the RCT, then the facility should be allowed to use WATER7 (or an approved alternative model) with site-specific design and operating characteristics and default biological kinetics to demonstrate whether or not the required mass destruction of VOHAPs is achieved.

b. Method 304 Is Cumbersome To Use, And Has Some Specified Operating Conditions That Will Be Impossible To Achieve For Many Biological Treatment Systems

Method 304 is an elaborate, closed treatability system that is intended to simulate the principal design and operating characteristics of a full-scale biological treatment system (note that the system is not truly closed, since during the Agency's developmental work the reactor was opened once/day when sludge was wasted, which allowed loss of the recirculating air)(Reference Document II-I-9, Docket No. A-90-23). However, certain characteristics of the Method 304 apparatus are incompatible with full-scale designs and will prevent the system from accurately simulating the full-scale process.

Aeration is provided to the bench-scale reactor by a pumped, recirculating air system. Carbon dioxide produced by the biodegradation reaction is removed from the recirculating air by scrubbing in a potassium hydroxide solution and the oxygen concentration in the recirculating gas is replenished from an oxygen cylinder that feeds oxygen on a signal from a dissolved oxygen probe located in the biological reactor. The method requires that the dissolved oxygen concentration in the biological reactor be maintained within $\pm$ 0.5 mg/L of that in the full-scale reactor (Method 304, Section 2.1.6) —— this may be impossible to achieve while maintaining adequate mixing in the bench-scale reactor.

In the bench-scale reactor the mixing required to suspend the biological solids in the mixed liquor is provided by the aeration device —— a bubbler system. In most full-scale systems, mixing is also provided by the aeration system and typically mixing controls the power requirements of the aeration system. This means that excess air is often provided in the full-scale system, which results in reactor dissolved oxygen concentrations that are higher than required for maximum biodegradation rates.

In the Method 304 bench-scale system, oxygen is added to maintain a specified dissolved oxygen concentration level. Because of the differences in oxygen transfer efficiency and mixing between the full-scale reactor system and bench-scale system, it will be luck if the dissolved oxygen concentration in the bench scale system can be maintained within ± 0.5 mg/L of the full-scale system <u>and</u> the required mixing level can be maintained as well. If it takes substantially less recirculating air in the bench system to maintain dissolved oxygen in the reactor than in the full-scale system, there may be insufficient mixing in the bench unit to properly contact the biomass with the mixed liquor and oxygen.

Another problem with EPA's proposed operating criterion is that the dissolved oxygen concentration in the typical full-scale plant will vary continuously as a function of the influent waste organic loading. This means that a decision on what constitutes the full-scale system dissolved oxygen concentration must be made to set a target for the bench-scale system. Is the dissolved oxygen criterion supposed to be a daily average? What should be done when the average of the full-scale plant changes from day to day or hour to hour? It is obvious that this criterion simply is not consistent with actual biological treatment system operation and is unachievable.

Method 304 also requires that the bench-scale unit temperature be maintained within ± 2 °C of the full-scale system (Section 2.1.5). However, the temperature in most full-scale systems will vary by 2 °C or more between day and night, and sometimes from day to day depending upon plant operations. Does this mean that the bench-scale unit temperature will have to be varied to track the full-scale unit temperature or does the $\pm$ 2 °C apply to the daily average temperature? The temperature control method specified for the Method 304 apparatus does not lend itself to continuous variation of reactor temperature. In addition, it is designed to add heat to the system by use of an immersion heater. In a closed biological reactor system such as the bench-scale unit, sufficient heat may be generated to increase the temperature above that in the full-scale reactor. This would thus require a cooling device for the reactor, which would add another order of magnitude of complexity to the experimental setup.

A fundamental design problem with the proposed system is its reliance on temperature and dissolved oxygen probes that are inserted into the bench-scale reactor. These probes will quickly be covered with biological growth which will impair their performance. They will thus require frequent cleaning, which will require opening the closed reactor. This cleaning defeats the purpose of using a closed system, since all the gases in the system, including any stripped VOHAPs, will be lost during this operation. CMA does not believe that there is any practical method to avoid this intrinsic problem with EPA's bench-scale design.

Another operational problem with EPA's bench-scale unit design is that it does not allow the analyst to deal with foam accumulation and accumulation of biomass on the walls of the reactor and in the clarifier. Many SOCMI wastewaters foam when aerated and all bench-scale bioreactors accumulate biological solids on the reactor walls above the liquid level. In addition, in many treatability studies the activated sludge tends to bridge in the model clarifier (which occurs because, unlike the full-scale clarifier, it has no sludge rake), reducing the amount of sludge recycled to the reactor. These conditions will also require opening the reactor and clarifier, thus negating the advantages of a closed system.

In addition to these rather significant deficiencies in the proposed method, the entire bench-scale system is a complicated and cumbersome apparatus that is not well-suited to treatability studies. Some of its drawbacks include: (1) it uses a separate secondary clarifier with a pumped sludge return, which is always difficult to control on a bench scale system because of changes in sludge settling and thickening properties; (2) it uses a total of 3 pumps/blowers, which must all be maintained at constant, closely-controlled feed rates; (3) the air recirculation/oxygen addition system relies on a vacuum-operated solenoid valve to add oxygen to the system, which is further controlled manually using the dissolved oxygen probe and meter; and (4) a thermostatically-controlled immersion heater is used to control temperature. All of these aspects of the proposed system will make it extremely difficult to operate, especially to meet the operating conditions required by Method 304 —— for example, the $\pm$ 0.5 mg/L dissolved oxygen, $\pm$ 2 °C temperature, and $\pm$ 5 per cent influent flow rate targets as compared to the full-scale system. In fact, those with experience with treatability testing would generally consider such operating criteria to be unachievable.

Anyone with experience in running bench-scale biological treatment studies will recognize that the proposed methodology, while it is well-conceived, will be extremely difficult to operate within the specified criteria. This will be especially true if the system is set up in the field by the full-scale unit so that a slip stream of the influent can be used to feed the bench-scale unit. CMA doubts that EPA has ever successfully simulated a full-scale system operation with the proposed Method 304 bench-scale system. CMA recommends that EPA reassess the ability of Method 304 to achieve its proposed objective, and its practicality for wide-scale use. We believe that an alternate, direct method, as described below, is a more realistic method for determining the fraction of an VOHAP that is biodegraded and the fraction that is emitted to the air on a site-specific basis.

c. EPA Should Allow The Use Of Alternate Analytical Methods For Analytes That Cannot Be Analyzed Using Method 18

In describing Method 304, one of the necessary analysis steps is the identification of the compounds of interest in the wastewater stream. EPA recommends that Method 18 be used as a guideline for developing the analytical technique and that purge and trap techniques may be used for analysis of the compounds (57 Fed. Reg. 62788).

Not all of the regulated VOHAPs are amenable to measurement by gas chromatography/mass spectrometry (GC/MS) screening techniques as suggested by EPA. Some analytes may need to be analyzed by high performance liquid chromatography (HPLC) or derivatized before analysis. Also, direct injection of wastewater is not advisable as there could be plugging of the inlet or column due to solids in the sample or reactions between components. Likewise, use of the purge and trap method could result in foaming problems. It may not be possible to develop one method to analyze all compounds found at one site.

CMA recommends that EPA state clearly that facilities will be allowed to use sample analysis methods other than Method 18 or a purge and trap method. This allowance of an alternative is clearly indicated in Method 305 and should be extended to Method 304.

d. The Influent And Effluent Wastewater Analysis Requirements In Method 304 Are Unachievable

Paragraph 4.2.1 of Method 304 requires that 6 samples of influent and effluent be collected from the bench-scale reactor, each separated by at least 8 hours of elapsed time, and that the relative standard deviation (RSD) of these influent and effluent data sets be less than ± 15 per cent (57 Fed. Reg. 62789). This requirement is absurd and unachievable.

The purge and trap analytical method itself has RSDs greater than ± 15 per cent for most volatile organic compounds. Method 624, the GC/MS method required for NPDES permit analyses for volatile organic compounds (40 CFR 136, Appendix A), has method performance data based on an extensive interlaboratory study of more than 20 laboratories. The single analyst precision estimates from this study are expressed as equations in Table 6 of the regulation, and can be used to directly calculate the inherent RSD of the analytical method. Examples of the RSD for several of the VOHAPs are as follows:

Constituent	RSD (%)
benzene	24.2
methylene chloride	16.2
1,4-dichlorobenzene	20.5
1,1-dichloroethene	17.9
toluene	14.3
trichloroethene	13.3
vinyl chloride	48.0

These RSDs mean that even duplicate analyses of the same sample could not achieve the $\pm$ 15 per cent RSD requirement of Method 304. This criterion must be dropped. As long as the analytical data meet the method-prescribed quality assurance/quality control limits for each analyte, then the influent and effluent data should be judged acceptable.

e. The Sampling Requirements For Method 304 Are Overly Restrictive

CMA believes that EPA's requirements for the collection and testing of wastewater samples (57 Fed. Reg. 62789) are overly restrictive, burdensome, and costly. Sampling of influent and effluent data pairs must be separated by eight hour intervals, and analyzed within eight hours of collection. On the surface this does not appear to be burdensome, that is, until one considers that EPA requires a minimum of six influent/effluent sample pairs. Thus, there is a total of at least 12 samples, each of which must be analyzed within eight hours of collection.

This translates into six lots of two samples each. The laboratory conducting the sampling would have to process samples 24 hours per day and recalibrate instruments each shift when the analyst changes. Few companies staff their environmental laboratories on a 24-hour basis. If a commercial laboratory is used, facilities would be forced to pay a premium to have samples analyzed in accordance with the Method 304 requirements, if a commercial lab could be found that would have the number of experienced analysts to staff three shifts per day.

These analytical requirements are clearly unreasonable. The NPDES analytical methods (Table II, 40 CFR 136) allow VOC samples to be preserved, refrigerated, and held for up to 14 days before analysis. Adherence to these holding times has been determined by EPA to prevent significant loss of VOCs from the samples. Method 304 should be revised to allow the preservation and holding times specified in 40 CFR 136 to be used.

f. EPA Needs To Clearly Define Audit Samples and Compliance Tests

Under audit analysis, EPA requires that a performance audit sample be analyzed during each compliance test (57 Fed. Reg. 62788). It is not clear whether the audit sample would be run concurrently with the compliance samples to assure same analyst/same condition compliance or whether the audit sample must be passed first before any actual samples are analyzed. If the latter is true, then there would be a time delay before facilities could begin performing analyses. For commercial labs, having to pass different audit samples for different waste streams would be a burden.

The Agency also fails to identify where an audit sample may be obtained or type of compliance test necessary to fulfill these requirements. The contact listed in the proposal has no added insight on the availability of this information. CMA believes that EPA should include this information in the regulation, rather than referencing a secondary source.

g. EPA Should Make It Clear That For New Treatment Systems, An Engineering Estimate Of Flow Rate Is Acceptable For Method 304

When calculating the flow rate of wastewater for the bench-scale test, EPA assumes the existence of a full-scale treatment plant and requires that the hydraulic residence time of the bench-scale unit be maintained at 90 to 100 per cent of the full-scale retention time. If, however, no full-scale system is in operation, this calculation cannot be made using actual flow rates. CMA assumes that EPA intends to allow engineering estimates of the design hydraulic retention time to be used for the bench-scale system in such situations. The regulation should clearly state that the design hydraulic retention time should be used in Method 304 when the full-scale system is not in operation.

h. EPA Should Re-Examine Requirements for Handling Sludge

Accumulation of a sludge blanket in the secondary clarifiers is a common practice in industry-activated sludge plants. In order to prevent such an accumulation as EPA suggests, the recycle rate (and hence, the system) would have to be run outside the normal operating parameters. This could potentially lead to an increased hydraulic load, which would change the system's response. Sludge should be recycled and wasted in a similar proportion to the full scale system.

EPA also suggests the addition of thickened activated sludge to reactors as necessary to maintain a specified concentration. Such a step appears to imply that water would have to be decanted off the sludge, which in turn could cause volatiles to be lost to the atmosphere. Additionally, adding sludge to increase the biomass concentration can lead to other problems. The necessity to add sludge indicates that there is not enough food to support the desired biomass level. Adding more sludge generally results in increased starvation of the biomass and death of bacteria. This causes the bacteria to lyse and release their cellular contents into the dissolved aqueous environment. The method should allow for the biomass to stabilize at its own equilibrium level in the wastewater.

11. **Alternate Methods Should Be Provided To Allow Demonstration That A Biological Treatment Unit Provides Effective Control Of VOHAPs**

As discussed in the preceding comment, Method 304 is fatally flawed and will not be a reliable predictor of site-specific biological treatment kinetics. EPA should allow process simulation models and bench/pilot scale biological testing as methods to demonstrate that biological treatment achieves the target VOHAP controls for those compounds for which biological treatment is not designated as RCT. For those VOHAPs for which biological treatment is specified as RCT, no confirmation testing will be required provided that design and operational parameters are within the RCT specifications.

a. **Alternate Biological Test Procedures, Which Are Less Cumbersome Than Method 304 And Will Provide More Reliable Estimates Of Site-specific Biological Degradation Coefficients, Should Be Allowed By The Regulation**

There are alternatives to proposed Method 304 that will provide reliable estimates of site-specific biodegradation kinetic constants, while being much less cumbersome to operate than the proposed method. An example of one such method is described below.

There is no technical reason for trying to estimate biodegradation rates in the absence of air emissions from a bench-scale system, if the air emissions from the bench-scale unit can be quantified. Given the current state-of-the-art of measuring concentrations of VOHAPs in air streams, there is no reason that this cannot be a component of a bench-scale biological testing procedure. With this approach, a mass balance can be used to calculate the biodegradation rate directly.

The proposed alternative to the EPA's Method 304 bench scale system does away with the air recirculation/oxygen addition system for aeration and replaces it with a flow-through aeration system with the capability to monitor the off-gas for VOHAP concentrations. This approach has been used previously by other investigators (Bishop, D.F., Memorandum to T.P. O'Farrell. Subject: Estimation of Removability and Impact of RCRA Toxics. September 26, 1985).

A closed biological reactor is used, but it can be either a integral reactor-clarifier unit which avoids the need to pump recycle sludge back to the reactor section or it can be a reactor/external clarifier system such as that used in Method 304. One advantage of the rectangular box type reactor-clarifier unit is that a mechanical mixing device can be easily installed in the reactor chamber so that proper mixing can be assured without having to add more air than is needed to achieve the target dissolved oxygen concentration. Air is pumped into the reactor through a diffuser, and the rate of air flow is controlled by a rotameter. The exhaust air from the reactor would be withdrawn under a slight vacuum (one to two inches of water) using a vacuum pump. The reactor lid would be fitted with a one-way vent to allow additional air to enter the reactor in response to the vacuum —— this will assure that VOHAPs will not accumulate in the head space of the reactor. The exhaust air flow rate would be monitored with a flow meter, and the air line would be fitted with a sampling port so that the exhaust air could be monitored for the target VOHAPs.

A test run, as EPA has outlined in Method 304, would consist of measuring the concentrations of target VOHAPs in the influent wastewater, effluent wastewater, intake air, and reactor exhaust air. Since the flow rates of all of these streams will be known, the fate of the VOHAPs can be calculated directly —— biodegradation or air emission. This obviates the need to worry about the accuracy of the biological kinetics and the model formulation in the calculation of the mass destruction of VOHAPs to compare it with the RCT performance.

b. The Regulation Should Allow The Use Of Biodegradation Kinetic Coefficients Predicted From Respirometric Studies And Chemical Structure In The Biological Treatment Unit Simulation Models

Recent research has demonstrated that the kinetic coefficients used in the Monod equation can be reliably predicted on the basis of chemical structure, using a model derived from respirometry studies (Tabak, H.H. and Govind, R., "Development of Predictive Models for Structure-Biodegradation Relationship with Respirometrically Derived Biodegradation Kinetics," Paper 92-29.05, 85th Annual Meeting and Exposition, Air and Waste Management Association, Kansas City, June 21-26, 1992). In this study, it was demonstrated that the group contribution approach i.e., UNIFAC fragment approach, could predict Monod and first order kinetics rate constants with considerable accuracy. Biodegradation kinetics constants developed with respirometric methods were used to develop the predictive model.

The regulation should allow kinetic constants predicted by this methodology to be substituted for the default constants in WATER7, or used in other acceptable biological treatment simulation models, to predict the relative fractions of volatilization and biodegradation in full-scale treatment systems for the purpose of demonstrating equivalency to the RCT.

12. **<u>The Control Requirements For Wastewater Treatment Tanks Are Much More Restrictive Than The Corresponding Requirements For Product Storage Tanks —— This Makes No Sense In Terms Of The Relative Potential Of The Two Types Of Tanks To Emit VOHAPs</u>**

Proposed §63.133(a)(1)(57 <u>Fed</u>. <u>Reg</u>. 62723) requires that fixed roof tanks containing Group 1 wastewaters must have a control device installed on the tank vent. Alternatively, §§63.133(a)(2)-(4) allow internal or external floating roofs or equivalent technology. These requirements are more restrictive than those proposed in the MACT section for product storage tanks, which requires vent controls for fixed roof storage tanks containing HAP compounds whose partial pressure is greater than 5.2 kPa (0.75 psia) [§63.119(a)(1)](57 <u>Fed</u>. <u>Reg</u>. 62707). The regulations also exempt product storage tanks with capacities of less than 38 cubic metres (§63.101)(57 <u>Fed</u>. <u>Reg</u>. 62688) —— there is no such exemption for wastewater tanks. It is clear that EPA has proposed more restrictive regulations for wastewater tanks than it has for product storage tanks —— this approach is nonsensical considering the relative potential to emit posed by the two types of tanks. Obviously, a product tank containing a pure VOHAP has a greater potential to emit than does a tank storing wastewater containing 1000 mg/L of the same VOHAP.

a. **EPA Should Regulate Oroduct Storage Tanks And Wastewater Storage Tanks Containing VOHAP Liquids Under A Single Rule. This Will Require Changing The Definition Of A Storage Vessel**

The definition of a storage vessel that is regulated by §§63.119-123 is given at §63.101 (57 <u>Fed</u>. <u>Reg</u>. 62688). There is no basis for regulating tanks storing VOHAP-containing wastewaters differently than tanks containing VOHAP-containing products. Wastewater storage tanks with submerged mixers should be regulated the same way as storage tanks with mixers for blending of product liquids are regulated, since the potential to emit will be equivalent to the partial pressure of the VOHAPs in the contained liquids, and not to any intrinsic differences between product liquids and wastewaters.

CMA recommends that the definition of storage vessel be expanded to include tanks storing wastewaters containing VOHAPs, so that both product storage and wastewater tanks are regulated equivalently. The suggested change to the definition is as follows (underlined portion added):

> "Storage vessel means a tank or other vessel used to store organic liquids...of this subpart, <u>and wastewater than contains VOHAPs.</u>

b. The Applicability Of The HON To Wastewater Storage Tanks Should Be Determined By The Partial Pressure Of The VOHAPs Contained Therein

There will be many situations where semi-volatile and non-volatile VOHAPs (Groups B and C) could have an aggregate concentration greater than 1000 ppmw but contribute little to the total partial pressure of organics in the vapor space of a covered wastewater tank. Their partial pressure at saturation will be substantially below the 5.2 Kpa action level specified for HAP product storage tank vents.

For example, the concentration in water of several VOHAPs that correspond to the partial pressure exemption level of 5.2 Kpa for product storage tanks is as follows:

Compound	Group	Concentration in Wastewater (mg/L)
benzene	A	1899*
styrene	A	5459*
acrylonitrile	B	>1,000,000
methanol	C	>1,000,000

*exceeds aqueous solubility

For two of these four HAPs, even pure product storage would not exceed the 5.2 Kpa partial pressure cutoff for fixed roof vent controls for organic liquid storage tanks. It makes no sense for wastewaters, which contain only fractional amounts of VOHAPs in aqueous solution, to be regulated more restrictively than pure product storage. As shown by these examples, there is no scientific basis for regulating VOHAP emissions from wastewater tanks more restrictively than the corresponding emissions from product, intermediate, and raw material storage tanks.

Inspection requirements for wastewater tanks include semi-annual inspections for improper work practices and control equipment failure [63.133(f)]. Semi-annual inspections are not required for product storage tanks. EPA offers no reasons why semi-annual inspections are required for wastewater storage tanks while product storage tanks, which have a much greater potential to emit VOHAPs, require annual inspections.

The storage vessel provisions [§63.120(a)(3)] are relatively specific about how the required tank inspections are to be conducted. Conversely, the additional wastewater tanks inspections proposed at §63.133(f) do not specify where to look or what to look for. Even the list of improper items is vague —— it uses the phrase "but not limited to" which leaves the determination of what is unacceptable practice uncertain. This provision means that the facility will be subject to the whim of each new inspector for determining whether or not a wastewater tank is in compliance with the rule. The proposed product storage tank regulations are more specific and do not rely on the facility or each individual inspector to decide what constitutes compliance.

The control requirements for product storage tanks and wastewater tanks should be identical —— there is no valid reason to have two different sets of rules. The same set of HON tank regulations should apply to all tanks that contain VOHAPs.

To have one set of tank regulations, EPA must establish an action level for covered wastewater tanks associated with wastewater treatment systems (i.e., equalization, neutralization) and tanks used to store wash water from maintenance operations that is equivalent to the action level for product storage tanks. The action level that would require controls to be installed on covered wastewater tank vents will be a total vapor pressure of all VOHAPs of 5.2 Kpa, calculated from the annual average concentration of the regulated VOHAPs (Table 9) in the wastewater and the partial pressures of each such VOHAP.

To calculate the partial pressure from VOHAPs in a tank vapor space, assume saturation (equilibrium) and Raoult's Law for organic compounds in wastewater. Raoult's Law states that the total vapor pressure of a mixture is the sum of the partial pressures of each component. In the case of a wastewater tank, the components will be water vapor pressure, VOHAP compound(s) vapor pressure, and the vapor pressure of non-HAP volatile organic compounds. Only the partial pressure due to the sum of the partial pressures of the Table 9 VOHAPs should be compared to the action level of 5.2 Kpa to determine if control of vents on covered wastewater tanks is required.

13. **Sources Of Fugitive Emissions From Wastewater Management Should Not Be Regulated Under Subpart G**

Proposed sections 63.135(d), 63.136(b)(4), 64.137(b)(1)(i), 63,138(h)(3)(ii), and 63.139(g) require that leak testing be performed on sources of fugitive emissions associated with wastewater management units using Method 21. CMA does not believe these requirements are appropriate for several reasons.

First, Method 21 is not an appropriate method for VOHAP measurements. Not only does it measure total VOC (instead of VOHAPs only), it is ineffective for measuring the low levels of volatile organics that are present in most wastewaters.

Second, subpart H contains detailed requirements for leak detection and repair of equipment in VHAP service that are possible sources of fugitive emissions. Subpart H correctly recognizes that equipment handling materials with low concentrations of VHAP, i.e., less than 5 percent by weight, do not warrant control for equipment leaks. The high cost and low environmental benefit of extending subpart H requirements to these low VHAP concentration streams was a key consideration in this conclusion. See preamble at p. 62667. Many of the wastewaters that will be subject to the proposed requirements in subpart G for leak testing will have VOHAP concentrations considerably less than 5 per cent by weight. Requiring leak testing on equipment handling these low VOHAP concentration materials will be costly while achieving negligible environmental benefit. EPA has not performed an analysis of the cost and environmental benefits of these requirements as required by the CAA.

CMA recommends, in order to achieve consistency and to reduce confusion and duplication, that fugitive emissions monitoring requirements based on Method 21 be deleted from subpart G. If EPA believes it is necessary to include fugitive emissions testing requirements for wastewater management units, these sources should be included under subpart H.

14. **The Monitoring Requirement For P-traps And S-traps Suggested By EPA Is Inappropriate**

Proposed §63.143(Table 10)(57 Fed. Reg. 62731) requires semi-annual visual inspection of water seals on individual drain systems to assure that they are functioning correctly. At §63.136(c)(1)(57 Fed. Reg. 62724) the regulation gives two examples of how this might be done: (1) use of a flow monitoring device showing positive flow to the trap; or (2) allowing water to continuously drip into the drain. Both of these examples are inappropriate and the second runs directly counter to pollution prevention efforts.

By design, p-traps and s-traps hold water to create a water seal between the collection system and the atmosphere, whether or not water is flowing into the drain. There will be times when there is no flow into or out of the trap, and a flow meter would be useless in such instances. This does not mean the trap is not functioning. In fact, unless a drain is unused most of the time (such as a drain only used during shut-downs), the p-trap and s-trap will always contain a water seal since the water will be frequently replenished as the drain is used.

Dripping water continuously into a drain is extremely counterproductive to pollution prevention efforts, and in fact, if practiced on all drains, could result in a plant exceeding its Clean Water Act permit limitations. SOCMI plants have been striving, especially since the promulgation of the OCPSF effluent limitations guidelines, to reduce water use and wastewater discharge. This is truly a bad example of an operating practice and must be deleted from the proposed rule.

Visual inspection of the individual drain systems is sufficient to demonstrate that the water seal in p-traps and s-traps is present. Such inspections should only be required for drains that are not in routine service —— drains that are regularly used for wastewater discharges should require no routine inspections. If necessary, the presence of water in the traps of infrequently used drains can be determined by using a flexible dipstick-type of device if the water cannot be observed directly. The regulation should also allow the use of nonvolatile organic liquids, e.g., glycols, to be used as a vapor barrier in p-traps and s-traps.

15. The Fraction Emitted (Fe) Value Used In The Equations To Calculate Uncontrolled Emissions From Tanks, Impoundments, Etc. Should Be Related To The Specific Type And Design Of Management Units Used At A Plant

In §63.150 (57 Fed. Reg. 62744) EPA presents several equations that are to be used for calculating emissions from wastewater. These equations all use VOHAP-specific fraction emitted (Fe) values that are to be taken from Table 13 of the proposed rule (note: at 57 Fed. Reg. 62749 EPA incorrectly references Table 33 for the Fe values).

These Fe values were calculated from the average estimated emissions from 3 different wastewater treatment systems, as shown in the BACT/LAER BID. These systems consist of various combinations of the following components: open drains, open lift stations, open junction boxes, manholes, open trenches, open sumps, and uncovered oil/water separators, clarifiers, equalization basin, aeration basins, treatment tanks. The estimated emission factors for a small number of VOHAPs were extrapolated to all other VOHAPs using Henry's Law constants.

It is incorrect to apply these VOHAP Fe values to specific treatment process units, as the equation for calculating emissions for units not meeting the requirements of §63.138(h) mandate [§63.150(f)(5)(ii)]. The Fe value for a single process unit, such as a treatment tank or oil/water separator, are not equivalent to the Fe values in Table 13 which are based on entire treatment systems with uncontrolled components.

EPA should specify an equation for calculating the Fe value for each type of process unit for each VOHAP, so that a facility-specific estimate of emissions can be made. For example, an equation should be provided so that Fe can be calculated for treatment tanks without vent controls. The source should have the option of using either equipment and HAP-specific Fe values, or the values in Table 13 of the proposed rule for all calculations in §63.150.

The equations for wastewaters at §63.150(f)(5) also include a factor of 0.05 which is a multiplier for VOHAP that is assumed to be transferred to the treatment system residual stream. These equations assume that all VOHAP removed from the wastewater are transferred to the residual (not destroyed) and that management of these residuals result in 5% of the VOHAPs being emitted to the atmosphere. There is no technical analysis in the docket that supports either of these assumptions.

The amount of VOHAP transferred to the residual, versus the amount destroyed (such as by biodegradation) depends on the treatment process used. It is incorrect to assume, a priori, that all VOHAP removed from a wastewater stream is transferred to the residual.

The amount of VOHAP emitted during the management of the residual depends upon the management methods used and the volatility of the VOHAP. Group C VOHAPs are obviously much less likely to be emitted during the residuals management than Group A VOHAPs. If the residuals management process is a thermal oxidation unit hard piped to a vent, then the emissions from residuals management will be less than 1 per cent.

The equations in §63.150(f)(5) should allow for the use of VOHAP-specific and management-specific emissions factors (for example, biological treatment units). The current equations could serve as the default format for sources that do not wish to use more detailed estimated emission factors.

16. <u>Emissions Credits Should Be Available For All Organic HAPs That Are Controlled By The Treatment/Management Processes Used To Comply With The Wastewater HON</u>

The treatment and control methods used to control VOHAPs will also control other organic HAPs that are not defined as VOHAPs. The equations in §63.150 for calculating emissions, control efficiencies, and emission credits should include credits for control of these non-VOHAP organic HAPs. This will require that EPA develop Fe and fraction removed (Fr) values for all organic HAPs and include them in this rule.

The rule allows credits for control of VOHAPs and other organic HAPs that are present in non-SOCMI wastewater streams and which are treated in the same, controlled units managing SOCMI wastewaters. CMA strongly supports this aspect of the proposed rule. A number of CMA member companies have integrated plants that generate wastewaters containing VOHAPs and other organic HAPs in non-SOCMI processes. When these HAPs are also controlled in a treatment system designed to achieve the wastewater HON requirements, credit should also be given for their control.

17. **The Proposed Control Requirements For Containers Used For Wastewater Collection And Treatment Are Inappropriate Or Counterproductive And Should Be Deleted From The Final Rule**

Containers that receive, manage, or treat Group 1 wastewater streams or residuals from such streams are proposed to be regulated by §63.135 (57 Fed. Reg. 62724). The term container is construed very broadly, and includes: "any portable waste management unit in which a material is stored, transported, treated or otherwise handled. Examples of containers are drums, barrels, tank trucks, barges, dumpsters, tank cars, dump trucks, and ships." (57 Fed. Reg. 62693)

a. **EPA Has Not Justified Control Requirements For Containers**

Containers used in wastewater treatment applications are basically used for temporary storage and transfers of wastewater and residuals. EPA has performed no analysis to justify these requirements as required by the statute. These activities are more closely related to the operations regulated by the transfer operations provisions of the HON than they are to the wastewater provisions. There is clearly no reason, on the basis of potential emissions, that containers used in wastewater applications should be regulated.

EPA has failed to quantify the emissions from containers and has failed to evaluate the environmental impact and cost of the proposed container regulations. In fulfilling its obligations under section 112(d), EPA should consider the following additional comments.

b. Ships And Barges Should Not Be Classified As Containers

Marine "containers" should not be defined as containers. The SOCMI HON does not apply to marine vessels. There is a separate EPA CAA rulemaking that will be promulgated to deal with emissions from marine vessels.

c. An Action Level Based On Capacity Should Be Included For Containers

As currently proposed, the wastewater HON would apply to containers as small as a test tube or beaker. This makes no sense in terms of potential emissions. CMA recommends that an action level based on a capacity of one cubic metre be applied to the container rule for wastewaters. A container smaller than 1 cubic metre should be exempt from the requirements of the HON.

d. A Submerged Fill Pipe Cannot Be Used For Many Residuals

Proposed §§63.135(C)(1) and (2) require that a submerged fill pipe be used when filling a container. This may not be possible for residuals that are solids, heavy sludges, or viscous liquids. These residuals may only fill the container from the bottom to the outlet of the submerged fill pipe because they do not flow freely, and would plug the outlet of the fill pipe, preventing further filling of the container. CMA recommends that the requirement of a submerged fill pipe be deleted for residuals.

e. The Proposed Rules May Discourage Treatment In Containers That Provides Environmental And Safety Benefits With Little Potential For Significant Emissions

Proposed §§63.135(d)(1) through (3) require that treatment in a container, including aeration, thermal, or other treatment, be conducted within an enclosure with a closed-vent system that is routed to a control device. [The term treatment process is defined at §63.111, but this definition does not appear to apply to §63.135(d).]

CMA believes that there are many activities that might be construed to be treatment, but which have little or no potential to generate vapors or fumes. Such activities could include Ph adjustment, adding absorbent to contain free liquids, adding inhibitors to prevent polymerization or chemical reaction, or perhaps even rinsing empty containers. Many of these activities have environmental and safety benefits by making the materials in the containers safer for handling and disposal and reducing the chances for spills or accidental releases. The proposed control requirement will complicate such management methods to the point that plants may elect to terminate the treatment step, which would be counterproductive to safety and environmental protection.

CMA believes that the potential emissions from limited treatment in containers are so insignificant in most cases that this requirement can be eliminated from the rule and would have little impact on the overall effectiveness of VOHAP control. If this requirement is retained in the rule, it should apply only to treatment in containers that is shown to cause significant VOHAP emissions that outweigh the environmental and safety benefits of the treatment step.

f. Annual Monitoring And Semi-annual Visual Inspection Are Not Possible For All Portable Containers

The proposed rules require that the cover on each container used to handle, store, or transfer a Group 1 wastewater stream or residual be monitored by Method 21 initially, and annually thereafter [§§63.135(b)(1) and (2)]. Proposed §§63.135(e)(1) and (2) require that each container be inspected initially, and semi-annually thereafter in accordance with §63.143 (visual inspection).

These requirements would apply to portable containers which are defined to include drums, barrels, tank trucks, barges, dumpsters, tank cars, dump trucks, and ships. These include containers that may be present at a site for a short period of time and may never return (for example, roll-off boxes or dumpsters provided by a commercial waste disposal contractor). In such cases, it will be impossible to conduct annual monitoring or semi-annual visual inspection of the container. These requirements are not achievable and should be deleted from the rule.

g. The Container Repair Requirements May Not Be Achievable For Some Containers

Proposed §63.135(f) requires that a first effort at repair be made within five calendar days and completed within 15 calendar days. Portable containers, including barges, ships, etc., may not be present at the plant location for five to 15 days. In addition, these containers may not be owned by the plant owner, who may not be authorized to make any repairs. This paragraph of the rule follows from the requirements of §§63.135(b)(1) and (2) and §§63.135(e)(1) and (2) and should also be deleted from the rule.

18. <u>EPA's Definition Of The Flow When Sampling Of A Wastewater Should Be Performed Is Inconsistent With Its Development Of Emission Estimates And Control Strategies</u>

Proposed §63.144(e)(57 <u>Fed</u>. <u>Reg</u>. 62736) describes how to determine the annual average flow rate for a wastewater stream, for use in applicability determinations. However, in describing how this should be accomplished, EPA deviates in many respects from the definition of an average flow rate and this results in contradictory and confusing instructions.

In §63.144(e)(1) EPA states that a maximum production capacity may be used to estimate the average flow rate. However, for an annual average flow rate, the maximum annual average production rate, rather than the nameplate capacity of a manufacturing unit, is the appropriate measure of production from which to estimate annual average wastewater flow. EPA should change the language to clarify that the maximum annual average production capacity should be used to calculate the annual average flow rate.

At §63.144(e)(2), EPA offers an alternate to estimating the flow rate from production capacity. This alternate is to select "the highest average flow rate representing the most recent five years of operation or, if the process unit has been in service for less than five years but at least one year, from historical records representing the total operating life of the process unit." Although it may be implicit in EPA's instructions, this definition does not state that the "highest average flow rate" is an annual average flow rate. The regulation should be reworded to make it clear that an annual average flow rate is to be calculated.

19. <u>The Performance Testing Requirements For Treatment Processes Are Inconsistent With EPA's Analysis Of Emissions Controls As Annual Averages</u>

The test methods and procedures for demonstrating compliance with the process wastewater provisions are proposed at §63.145 (57 <u>Fed</u>. <u>Reg</u>. 62736). These procedures and provisions are inconsistent with the emissions estimates and control technology performance estimates that EPA has used in the development of this rule.

Proposed §63.145(a)(1) requires treatment processes and waste management units to be tested for compliance at inlet wastewater flows and VOHAP concentrations under which it would be most difficult to demonstrate compliance. This standard is presumably intended to mean that the tests should be run at peak flow rates and peak wastewater VOHAP concentrations. Discounting the fact that determining when these conditions are likely to occur may be practically impossible (in fact, peak flows and peak VOHAP concentrations are likely not to occur simultaneously), this condition does not represent the annual average condition upon which all of the Agency's emissions estimates and performance estimates are based. This is both an impractical and technically unjustifiable basis for compliance determinations.

Compliance testing should be performed under conditions that are most representative of the wastewater flow and VOHAP concentrations that were used for the applicability determination —— highest annual average flows and corresponding VOHAP concentrations. It is more practical to determine when a manufacturing process is operating at the maximum production rate that corresponds to the applicability determination of §63.144 than it is to identify a condition of peak wastewater flow and VOHAP concentration, and this should be the time when compliance testing is performed.

EPA should revise §63.145(a)(1) to require that compliance testing be performed when the SOCMI process is operating at the production rate or annual average flow rate determined pursuant to §63.144(e).

20. There Are Errors In The Flow Diagrams That EPA Has Provided To Describe The Wastewater HON Requirements

The flow diagrams that EPA has provided to assist facilities in interpreting the wastewater HON requirements are useful. However, there are errors and inconsistencies in some of the figures that should be corrected.

a. Figure 2

Figure 2 incorrectly references the exemption for storm water, spills and safety shower water. The correct reference is §63.100(b)(3)(vi). The two references currently shown in the second level decision node should be deleted and the correct reference should be added.

b. Figure 4

The right hand circle directs the reader to Figure 6. It should also direct the reader to Figure 7.

c. Figure 8

Figure 8 and § 63.138(g)(3) require 99 per cent total HAP mass destruction in treatment residuals —— this extends the regulation to many non-volatile organic and inorganic compounds and is inappropriate and practically unachievable for some waste constituents. As discussed elsewhere in these comments, total HAPs include inorganic compounds that cannot be destroyed (metals). Also, there is no technical basis in this rule to support the requirement of 99 per cent destruction of all organic HAPs.

Both Figure 8 and §63.138(g)(3) should be corrected to require that residuals from Group 1 wastewaters only be treated to destroy VOHAPs. Also, a cutoff of

1000 ppmw should be provided as an alternate to 99 per cent mass destruction to account for residuals with low VOHAP concentrations.

21. <u>EPA Has Correctly Exempted RCRA-permitted Treatment Units From This Rule, However, Some Of The Provisions Are Contradictory And Erroneously Referenced</u>

Proposed §63.138(l)(57 <u>Fed</u>. <u>Reg</u>. 62729) exempts RCRA-regulated hazardous waste incinerators, boilers, and industrial furnaces burning hazardous wastes, and underground injection wells from regulation by the wastewater HON. This section declares these treatment and disposal units to be in compliance with §§63.138(b), (c), and (g) and exempt from §63.138(i). These units must comply with §§63.138(d)-(f), (h), (j), and (k). The operator must also document compliance with applicable RCRA requirements for treatment and disposal units subject to these provisions.

CMA supports EPA's effort to exempt these RCRA-regulated units from the HON wastewater requirements. However, this very complicated section of the rule contains erroneous cross-references to other provisions. Specifically, CMA believes that §63.138(l) should declare these RCRA-regulated units to be in compliance with §63.138(d), as well as §§63.138(b), (c), and (g). Also, we believe that §63.138(l) should exempt these units from §63.138(f) as well as §63.138(i). These units would then have to comply with §§63.138(e), (h), (j), and (k).

Proposed §63.138(d) is a treatment standard which is an option to the §63.138(c) treatment standard. Since these RCRA-regulated units are declared in compliance with the treatment standards in §§63.138(b) and (c), it stands to reason that they also should be declared in compliance with the §63.138(d) treatment standard. As proposed, the HON requires that these RCRA-regulated units must comply with the §63.138(d) treatment standards. The effect of the proposed rule is to limit these RCRA-regulated units to one specific treatment option, rather than to exempt these units from the treatment standards as intended.

The design steam stripper specifications in §63.138(f) are relevant only to the treatment standards in §§63.138(b) and (c). Since the specified RCRA-regulated units are declared to be in compliance with (b) and (c), §63.138(f) is irrelevant. Therefore, these units should be exempt from §63.138(f) just as they are exempt from §63.138(i), compliance demonstration requirements, which are also irrelevant. As proposed, the rule requires that these units comply with the steam stripper design criteria even though they are declared to be in compliance with the treatment standards that impose the steam stripping requirements. In addition, as proposed, these units would be required to comply with §63.138(d) treatment standards which are an option to the treatment standards which impose the steam stripper criteria. Clearly, the cross-references as proposed in §63.138(l) are illogical, inconsistent, contradictory, and must be corrected.

22. <u>Certain Of The Requirements In §63.138 Need Clarification And/Or Modification</u>

The provisions for process wastewater treatment processes are specified in §63.138. Certain of these provisions would benefit from additional explanation. Also, CMA believes that some of the provisions of this section could be modified to relieve the regulatory burden without adversely affecting emissions reductions.

a. The Text Should Clearly State That After Wastewater Streams Are Treated To Target Levels They Are No Longer Regulated

Proposed §§63.138(b) and (c) (57 Fed. Reg. 62727) specify the treatment methods to be used to achieve compliance with the rule for Group 1 wastewater streams. CMA's interpretation is that once one of these treatment methods has been implemented and demonstrated to comply with the requirements, the resulting wastewater stream that exits the wastewater treatment unit is no longer regulated by the wastewater HON. The text of the rule should state that once Group 1 wastewater streams are treated according to HON requirements, the treated wastewater is no longer a HON wastewater stream.

b. The Rule Should Clarify That If A Source Elects To Install A Steam Stripper That Meets The Design Requirements Of The Rule, No Performance Test Is Necessary

The proposed rule allows a source to comply with §§63.138(b)(1)(ii)(B), (c)(1)(ii)(A), and (c)(1)(iii)(A) by installing a steam stripper designed in accordance with the specifications at §§63.138(f)(1)-(6)(57 Fed. Reg. 62728). CMA's interpretation of the proposed rules is that if this steam stripper is installed, no performance testing is required. Only operational monitoring as specified in Table 11 at §63.143 is required for the steam stripper. The language in the proposed rule does not explicitly state that performance testing is not required for the design steam stripper. CMA recommends that clarifying language be added to §63.138(f) stating that performance testing is not required for the design steam stripper.

c. The Design Specifications For The Steam Stripper Should Be In Accordance With Design Practice

Proposed §63.138(f)(2) requires that the stripper have a minimum of ten theoretical trays. The design should specify the number of theoretical "stages" rather than the number of trays. This is more consistent with design terminology for steam strippers.

d. Recordkeeping And Reporting Under This Rule Should Not Be Required For RCRA-permitted Treatment Units

The proposed rule exempts certain RCRA-permitted treatment and disposal units from compliance with this rule [§63.138(l)](57 Fed. Reg. 62730). The rule does not exempt the RCRA units from the recordkeeping and reporting requirements of the wastewater HON.

RCRA-permitted treatment units are subject to extensive monitoring, recordkeeping, and reporting requirements. Overlaying another set of recordkeeping and reporting on such units substantially increases the regulatory burden, for units that are already highly regulated. CMA believes that this additional recordkeeping and reporting burden is unnecessary and onerous.

CMA requests that EPA exempt from recordkeeping and reporting for this rule those RCRA-permitted treatment units that are exempted from other specific requirements of the wastewater HON by §63.138(l).

e. All Underground Injection Wells Should Be Exempted From The Wastewater HON Requirements

Proposed §63.138(l)(3)(57 Fed. Reg. 62730) exempts underground injection wells from the control provisions of the wastewater HON if the owner/operator has been issued a final permit under 40 CFR 270 and complies with 40 CFR 122. There is no basis in this rule for restricting the exemption from VOHAP controls to RCRA-permitted injection wells, which this provision does.

Underground injection wells for non-RCRA wastewaters are regulated by 40 CFR Parts 144-147. These wells are permitted by states as part of the underground injection program. These permits include extensive design, operating, and recordkeeping requirements. When a wastewater is injected in such a well, there is no potential for VOHAP emissions. Therefore, there is no basis for applying the requirements of the wastewater HON to any type of permitted injection well that is used for wastewater disposal. EPA has not analyzed potential emissions from injection well disposal in its studies that support the rulemaking, and thus has no basis for regulating any type of underground injection well.

EPA should add to §63.138(l) language that extends the exemptions from control technology to any underground injection well permitted pursuant to 40 CFR Parts 144-147.

f. EPA Should Not Specify The Type Of Condenser Used For The RCT Steam Stripper

Section §63.138(f)(6) requires that a water-cooled condenser be used on the RCT steam stripper. It also specifies the maximum allowable vapor temperature on the primary condenser outlet.

The downstream vapor control requirements of the rule assure that emissions from the primary condenser will be controlled. The proposed condenser requirement does not affect the performance of the steam stripper itself. There is no need to specify the type of condenser that is used on the RCT steam stripper. Therefore, §63.138(f)(6) should be deleted from the rule.

23. <u>The Requirements For Closed-vent System Control Devices Need To Be Changed To Better Represent The Types And Performances Of Devices That Can Be Applied To These Vents</u>

The requirements for control devices on closed-vent systems are proposed at §63.139 (57 Fed. Reg. 62729). These requirements apply to closed combustion systems, flares, and other control devices.

a. A Concentration-based Cutoff Is Needed For Non-combustion Closed-vent System Control Devices

The proposed performance standard for vent control devices that do not use combustion processes requires a minimum removal efficiency of 95 per cent by weight of total organic compounds (less methane and ethane) or total organic HAP emissions [§63.139(b)(4)](57 Fed. Reg. 62730). When the concentration or mass of total organic compounds or total organic HAPs in a closed-vent system gas stream is low, 95 per cent removal may not be achievable. This situation may occur for wastewater tanks and separators because of the low partial vapor pressures and emissions expected in wastewaters (see above comments on wastewater tanks) A concentration-based cutoff level is needed to account for this situation.

The proposed regulations for combustion devices use a lower level cutoff of 20 ppm by weight [§63.139(b)(1)(ii)] with the 95 per cent reduction requirement. This concentration cutoff level should be allowed for noncombustion control devices by incorporating it into §63.139(b)(4).

b. The Design Analysis For Compliance Demonstration Should Be Inclusive Of All Potential Control Technologies

Facilities can demonstrate compliance with the standards for vent control devices by using a design analysis [§63.139(c)(2)]. The regulations specify the types of information that have to be supplied in the design analysis for different types of control devices, including condensers, carbon absorbers, catalytic incinerators, boilers and process heaters, and flares. However, as currently structured, the regulation only addresses a limited list of potential control devices. Potential control devices such as scrubbers and two-stage systems incorporating different types of technologies (such as a scrubber followed by a flare) are not addressed in the regulations, and presumably a design analysis of such devices could not be used to demonstrate compliance. The regulations should encourage the use of whatever type of vent control device is the most cost-effective; scrubbers, for example, can be effective control devices for specific VOHAPs and are cost-effective when they are appropriate.

The Agency needs to modify the proposed regulation to allow facilities with other types of closed-vent system control devices to demonstrate compliance with the performance standards at §63.139. EPA should include in §63.139(c)(2) a generic design analysis requirement for control devices that are not specifically cited in the regulation.

c. Emergency Relief Devices Should Be Exempted From Bypass Requirements

Section 63.139(h) identifies certain components of a closed vent system that are exempt from the bypass requirements at §§63.139(h)(1) and (2). Provisions (h)(1) and (h)(2) require flow monitoring or a locked valve on bypasses.

This section should be modified to exempt emergency relief valves from these bypass requirements. Obviously, neither of these provisions are technically practical for emergency control devices.

24. EPA Needs To "Clean Up" The Language In The Wastewater Section Of The HON —— Terms Such As HAP, Organic HAP, And VOHAP Are Used Interchangeably And Are Confusing

In the wastewater section of the HON, EPA uses the terms HAP, organic HAP, and VOHAP almost interchangeably. An example is proposed § 63.138(g)(3), which requires 99 per cent total HAP mass destruction in treatment residuals —— this extends the regulation to many non-volatile organic and inorganic compounds and is inappropriate and practically unachievable for some waste constituents. This misuse of these terms is not only confusing, it could ultimately lead to serious conflicts between regulatory agency personnel and the regulated community.

The wastewater provisions of the HON regulate VOHAPs —— a subclassification of organic HAPs —— which are specifically identified in Table 9 of the proposed rule. The use of the terms "HAP" and "organic HAP" should be avoided in the wastewater section of the rule, since they refer to many chemicals that are not VOHAPs.

EPA should revise the wastewater section of the HON so that the term VOHAP is used whenever the Agency is referring to wastewater controls and measurements.

25. Certain Wastewater Monitoring Requirements Should Be Modified To Make Them More Appropriate For The Range Of Control Options That May Be Used

a. Wastewater Monitoring Requirements Should Include Provisions That Will Apply To All Potential Vapor Control Devices — Scrubbers Are An Example Of Control Equipment For Which EPA Has Failed To Specify Monitoring Requirements

The proposed monitoring requirements for control devices on closed-vent systems is tailored to a specific list of devices (Table 12, §63.143). Potential control devices such as scrubbers are not included in the list of monitoring requirements. Since for some vent streams control devices such as scrubbers will be cost-effective, the monitoring requirements should have provisions that are generic to all potential vent control devices.

b. The Rule Should Exempt Recycle Systems From Any Monitoring Requirements

Wastewaters that are recycled wholly within a SOCMI process, and which are not exposed to the atmosphere, represent no significant potential to emit. These recycle systems should be specifically exempted from the wastewater monitoring requirements.

c. Method 304, Or Any Other Bench-scale Test Procedure, Should Not Be Required For Routine Monitoring Of Biological Treatment Unit Performance

Item 7 in Table 11 [§63.143(b)] describes the routine monitoring requirements for systems that use biological treatment units to destroy VOHAPs. Although this provision states that appropriate monitoring parameters can be used upon approval of the Administrator, it establishes Method 304 as a baseline monitoring method for biological treatment units. Notwithstanding the fundamental flaws in Method 304 described earlier in these comments, which make it virtually unusable for any treatability study, no bench-scale treatability study is appropriate or practical for monitoring the ongoing performance of a full-scale biological treatment plant. Once it is established that effective biodegradation of VOHAPs is achieved in a treatment unit, then normal operating parameters for such systems should be used to demonstrate compliance on a routine basis. The use of a bench-scale biological test to update biodegradation efficiency is only appropriate when there are major changes in wastewater composition that cannot be reliably evaluated with a process simulation model.

Biological treatment processes are operated using a relatively standard set of parameters including mixed liquor suspended solids (MLSS) concentrations, mean cell retention time (MCRT), and effluent concentrations of gross measurements of wastewater organic content such as biochemical oxygen demand (BOD) and total organic carbon (TOC). These operating parameters allow these plants to consistently remove specific organic compounds, including VOHAPs, to concentrations below the analytical quantitation limit. These same operating parameters are equally suitable for ongoing compliance demonstrations.

For VOHAPs for which biological treatment is designated as RCT, as opposed to those VOHAPs for which a demonstration test must be conducted to prove that they are biodegradable, a separate provision should be added to Table 11 of the rule specifying the operating parameters that will be routinely monitored to demonstrate compliance. This new provision would be equivalent to provision 9 in Table 11 which applies to the RCT steam stripper.

d. All Of The Alternate Testing And Analytical Methods Specified Elsewhere In These Comments Should Be Considered Acceptable For Meeting The Monitoring Requirements Of This Rule

Table 11 prescribes a number of test methods that are required to be used to monitor treatment processes used to control VOHAP emissions. Elsewhere in these comments CMA has identified a number of alternate monitoring and analytical methods that are equivalent to, or more appropriate than in certain circumstances, the prescribed methods. These alternate methods should not require validation and approval by EPA before they are used, as is currently proposed. Rather, the methods described elsewhere in these comments should be cited as acceptable alternatives for monitoring for each situation and process to which they are applicable.

26. <u>Provisions In The Proposed HON Conflict With Provisions In The Existing Benzene NESHAP For Waste Operations, And Could Require Plants That Have Made Physical Modifications To Comply With The Benzene Rule To Make Additional, Expensive Changes To Comply With The HON, Even Though Such Additional Changes Provide Negligible Reductions In Releases</u>

A large number of SOCMI facilities must comply with the NESHAP for benzene waste operations (40 CFR 61, Subpart FF). The benzene waste operations NESHAP provides several compliance options for regulated facilities, but does not use steam stripping as RCT. In fact, the benzene rule specifically allows the use of enhanced biodegradation units, with specified operating criteria, as a treatment method for benzene-containing wastewaters with no requirement for any type of equivalency testing

[§61.348(b)(2)(ii)(B)]. There are other significant differences between the provisions of the promulgated benzene waste operations NESHAP and the proposed wastewater HON.

Companies that have invested considerable time, resources, and funds to comply with the benzene NESHAP. Companies have installed or are installing steam strippers that will meet the benzene NESHAP, but may not meet the design standards for the HON steam stripper. Other plants are taking advantage of existing enhanced biodegradation systems by transporting regulated wastewaters in controlled collection and treatment systems to the biological treatment unit, which requires no controls beyond meeting the design and operating criteria specified in the rule. The more restrictive proposed wastewater HON provisions may compromise these investments.

CMA recommends that EPA include in the wastewater HON regulations a provision that exempts from regulation process wastewaters that are regulated by the benzene waste operations NESHAP. This exemption would apply only to those wastewaters that are subject to the benzene NESHAP.

27. **Steam Strippers Installed For Other Purposes Than The Wastewater HON, Including Meeting The Requirements Of Other Regulations, Should Be Grandfathered and Limited To Treatment Of Wastewaters For Which They Were Designed**

In addition to the benzene waste operations NESHAP, there are other reasons for which plants have installed steam strippers that they are currently using. This includes compliance with the OCPSF effluent limitations guidelines and pretreatment standards, and to meet corporate waste minimization targets. These existing steam strippers should grandfathered by the wastewater HON for those wastewaters that they are designed and operated to treat.

The process parameter operating boundaries for existing steam strippers should be established by the plant using a simulation modeling study (ASPEN, HYSIM, PROSYM, and FLOWTRAN), comparison to the design and operating conditions of the RCT steam stripper, or performance testing.

28. Certain Control Requirements For Surface Impoundments Need To Be Changed

The control requirements for surface impoundments storing or treating VOHAP-containing wastewaters are proposed at §63.134. Section 63.134(b)(1)(i) requires leak testing of the surface impoundment cover using Method 21. The regulation should exempt surface impoundments that operate under a vacuum from leak testing with Method 21.

The proposed regulations at §63.134(d) require that when a leak in an impoundment cover is found, first attempts at repair must be no more than five calendar days from the date the leak is identified, and repairs must be completed within 15 calendar days of identification (57 Fed. Reg. 62724). The required completion of leak repair within 15 days may be physically impossible. EPA should allow 45 days for completion of repairs to surface impoundment covers as it has done for tanks at §63.133(g).

29. The Wastewater Provisions Of The SOCMI HON Regulation Should Be Revised To Make Them More Adaptable To Specific Situations, More Consistent With Other Regulations, And Less Burdensome Administratively

The proposed wastewater provisions of the HON are incredibly complex, prescriptive, and administratively burdensome. Although the Agency has attempted to provide regulated facilities with alternative methods for compliance with the rules, for many the alternatives are so difficult to comply with that they are not practical. In addition, the HON wastewater provisions are inconsistent with other EPA rules and will require some plants to install redundant equipment for very little reduction in emissions.

CMA believes that the regulation should be revised to incorporate the following hierarchy of technological options:

a. Strippers installed to comply with requirements of other rules (for example, benzene NESHAP, OCPSF effluent limitations guidelines, vinyl chloride NESHAP) should be grandfathered as RCT and their use limited to the wastewater streams for which they were designed.

   The process parameter operating boundaries for these strippers should be demonstrated through the use of a verified process simulation modeling study.

b. Strippers installed for waste reduction purposes and not required by state or Federal regulations, should be grandfathered and limited to treatment of the wastewater streams for which they were designed.

   The process parameter operating boundaries for these strippers should be demonstrated through the use of a verified process simulation modeling study.

c. Changes involving operating parameters, chemicals, or streams to the strippers grandfathered in accordance with a and b, above, should have to demonstrate compliance with the HON rules by simulation modeling, installation of RCT, or performance testing.

d. Installation of RCT for steam strippers or biological treatment systems should be allowed with only process parameter monitoring required to demonstrate compliance with the HON. Performance testing for these RCT systems would not be required.

e. Installation of alternate forms of stripping or biological treatment (that is, other than the RCT design) or any other treatment option should be allowed. Compliance would be demonstrated by use of a process simulation model verified for the specific system design and operation.

f. Changes to the treatment method(s), including but not limited to addition of wastewater streams or VOHAPs, or changes in treatment system operating parameters, should be allowed if compliance is demonstrated by use of a verified process simulation model.

g. Compliance testing should only be required in the event that a verified process simulation model was not available or the simulation model showed that compliance may not be achieved for the modeled operating conditions.

The wastewater provisions of the HON should be changed to incorporate this hierarchy of control options and compliance methods. This will also require modification of the flow charts in Figures 5 through 8 of the proposed rule.

These recommended revisions to the proposed rule are consistent with its intent and objectives. They would greatly simplify compliance with the regulations, would assure that the investment in existing wastewater treatment units which provide VOHAP control is not rendered superfluous, and will provide the emissions reductions that are EPA's objective of the HON rule.

30. <u>SOCMI Plants That Discharge Wastewaters To Publicly Owned Treatment Works (POTWs) Should Not Be Required To Notify The POTW Of Such Discharges, And Should Not Have To Demonstrate Compliance With §§63.133 Through 63.138 Of The HON</u>

The proposed rules specify that a SOCMI generator of Group 1 wastewaters may transfer such wastewaters and residuals off-site provided that it assures compliance with §§63.133 through 63.137 during transport of the wastewater to the off-site facility and with §§63.138(b) and (c). In addition, notice must be provided to the off-site facility indicating that the wastewaters and residuals must be managed and treated in compliance with Subpart G of the rule (in the case of POTWs, the notification must be made annually).

The provisions of the Clean Water Act, including the pretreatment regulations at 40 CFR 403 and the OCPSF pretreatment standards at 40 CFR 414, provide adequate control of industrial dischargers that may discharge VOHAPs to industrial sewers and additional regulation under the HON is not required. Furthermore, EPA is required by the CAA to review HAP emissions from POTWs and promulgate a MACT standard for POTWs. This promulgation is scheduled for 1995. At this time, by their own admission, EPA has no data to indicate that emissions of VOHAPs from POTWs are significant and that existing pretreatment controls are inadequate.

The General Pretreatment Regulations at 40 CFR 403 consist of both general standards and local limits. The general pretreatment standards, which apply to all POTWs, prohibit wastewater discharges that could create a fire or explosion hazard in the collection system or at the treatment plant. POTWs have been required to enforce these standards for years, which effectively prevent the discharge of potentially dangerous amounts of ignitable VOHAPs to public sewers. In addition, POTWs are required to establish local pretreatment limits to prevent the discharge of chemicals at concentrations that could cause risk of explosion or fire or cause human exposure that would result in excessive health risk. Many POTWs have adopted local limits for specific VOHAPs in accordance with these provisions.

In addition, the General Pretreatment Regulations require that POTWs issue permits to discharge to every significant industrial user of the system. Indirect dischargers must file permit applications that include wastewater characterization data for all of the major constituents in the wastewaters, which would include the VOHAPs that will be regulated by the HON. The POTWs are required to issue enforceable permits that limit the mass, and in some cases the concentration, of each significant toxic pollutant in the industrial user's discharge. These limitations would include VOHAPs that are present at significant concentrations and masses. These requirements are much more comprehensive notification provisions than are proposed in the HON.

The OCPSF pretreatment standards for existing sources (PSES) and new sources (PSNS), which were promulgated in 1987, have limits for 23 of the Table 9 VOHAPs. These pretreatment limits are based on steam stripping technology. The 23 VOHAPs regulated by the OCPSF PSES/PSNS represent the most significant quantities of volatile organic compounds that are discharged to POTWs on a nationwide basis. The controls that are necessary to achieve these limits are already in place, since they were required to be installed by October of 1990.

It is apparent that SOCMI discharges to POTWs are already tightly regulated. POTWs are already given complete reporting of the characteristics of significant industrial dischargers, and permits limiting such discharges on a mass basis are required. In the absence of data demonstrating that additional controls on VOHAPs are necessary, there is no justification for including discharges to POTWs in this rule.

The regulation should be revised to require generators of Group 1 wastewaters to manage them as required by the HON up to the point of discharge to the POTW collection system. At this point, the existing CWA regulatory programs should be allowed to take precedence and no additional notifications or controls should be required by the HON.

31. Process Simulation Models Are an Appropriate And Reliable Means Of Estimating VOHAP Emissions From Wastewater Management Systems And For Demonstrating The Effectiveness Of Treatment and Control Equipment

The proposed rule relies extensively process simulation models and methods to estimate emissions from collection and treatment system components and to calculate the efficiency of treatment and control equipment. CMA believes that when appropriate simulation models and methods are used, and the input assumptions are realistic and accurate, such models and methods are the most practical way of estimating emissions and control efficiencies. This is especially true for wastewater management systems, where measurement of emissions is often difficult.

When used on a global basis, such as for estimating nationwide VOHAP emissions from SOCMI wastewater management systems, the reliability of the estimates is largely related to how well the scenarios modeled resemble the reality of the actual universe of facilities being simulated. This is also true for the calculation of generic emission factors for wastewater management (Fe values in Table 13 of the proposed rule) and generic estimates of treatment performance (Table 33 *strippability factors for steam stripping* RCT). EPA has compensated for the uncertainties in its information on the nationwide emissions estimates for wastewater systems by making very conservative assumptions about collection system design and operation that overestimate actual emissions. As pointed out elsewhere in these comments, these assumptions must be made more realistic to reduce the level of overestimation in the current estimates. This situation, however, illustrates the hierarchy of simulation modeling reliability — the more site-specific and process-specific the data are, the more accurate will be the simulation results.

The closer the modeling assumptions reflect reality, then the better are the predictions of emissions or treatment performance. Thus, process simulation of VOHAP removal by a biological treatment unit with specified design and operating conditions and wastewater characteristics will result in a more accurate estimate of treatment performance than would an estimate using generic operating and design parameters and an assumed wastewater stream. The same would hold true for steam stripper performance estimates — site-specific simulations will be more reliable estimators of treatment performance than a generic simulation of strippability on a VOHAP-specific basis.

CMA believes that this hierarchy of simulation model reliability supports the use of simulation methods to demonstrate compliance with emission control and treatment standards for VOHAPs on a site-specific basis. Clearly such estimates are many times more accurate than the nationwide estimates of VOHAP emissions from wastewater treatment that are the basis for this rule.

F. EMISSIONS AVERAGING

Emissions averaging is an economically and environmentally beneficial approach to emission control. In the proposed rule, EPA has moved toward an averaging system that will work. CMA supports the Agency in its progress between earlier drafts and the proposed version of the rule. We encourage EPA to further refine the averaging provisions.

CMA believes that certain elements of the emissions averaging proposal are critical to the viability of averaging. These include the use of an annual average, a fixed quarterly cap (as described below), the absence of restrictions on averaging of emissions of different pollutants, and a baseline date (if one is adopted) no later than November 15, 1990. Without these elements, CMA seriously doubts that averaging can be made to work. Other important elements include limited banking of credits, no discount, and averaging across source categories and across new and existing sources, and the inclusion of equipment leaks. As discussed below, these elements are fully consistent with the statute and provide significant enhancements to this environmentally and economically beneficial compliance option.

Averaging will be important to sources who find it impracticable to install controls at the prescribed performance level. For instance, a source may find it prohibitively expensive to remove an existing process vent control that achieves 95 percent efficiency and replace it with one that achieves 98 percent efficiency. Averaging will allow the source to keep the 95 percent control device in place and overcontrol somewhere else. The result is that the source avoids a wasteful expenditure and the equivalent emission reduction is achieved.

EPA's cost figures in a July 1992 control options paper show there is a three order of magnitude compliance cost variation around the average cost. This further supports the need for emissions averaging.

In the comments that follow, CMA supports the basis for emissions averaging, and recommends changes that will make the system more useable while ensuring environmental benefit.

1. Emissions Averaging Is Consistent With, If Not Required By, Section 112(d) of the Act.

As discussed elsewhere in these comments, the requirement under sections 112(d) and (i) of the Act to comply with MACT applies to "sources," not to individual emission points within sources. The statute imposes no specific requirements on how individual emission points are to be controlled, so long as the source as a whole achieves a "degree of reduction" that satisfies MACT.

This statutory framework gives EPA considerable flexibility in determining how the "degree of reduction" constituting MACT is to be achieved. EPA could, for example, promulgate a simple numerical emissions limit for sources in the category, leaving it up to each individual source to decide how to meet that limit. Indeed, the statute itself requires that approach to be adopted where feasible; under section 112(h), standards are to be specified, where feasible, as numerical emission limits rather than as design, equipment, work practice, or operational standards. Section 112(h). This directive reflects Congress's intent that the emission reductions required by the statute be implemented in a flexible and cost-effective fashion.

The proposed HON adopts an intermediate approach, under which EPA will specify control requirements on individual emission points within sources, but will also allow sources to achieve equivalent reductions through emissions averaging. This approach is fully harmonious with the statutory scheme.

There has been a suggestion that emissions averaging could be inconsistent with the MACT floor, because the debit-generating emission points that are not controlled with reference control technology will not satisfy the "floor" for those points. This argument is without merit, inasmuch as it confuses "sources," which must comply with MACT (which must in turn be at least as stringent as the MACT floor) with "emission points," which are subject to no such requirement. The emissions averaging provisions of the proposed HON require sources to demonstrate that credits and debits are evenly balanced, so that the total level of emissions from the source is no greater than the level that would be achieved by the strict application of reference control technology. Since it is the application of this reference control technology that generates the "degree of reduction" constituting MACT, any other set of controls in the source that achieves the same level of reduction will by definition also satisfy MACT.

The proposed emissions averaging provisions are also consistent with the statutory definition of MACT itself, which requires the level of control constituting MACT to be defined with reference to economic cost, nonair-quality environmental impacts, and energy impacts. Section 112(d)(2); see also S. Rep. No. 228, 101st Cong., 1st Sess. 167 (1989) (calling for application of "the maximum degree of reduction in emissions . . . which is achievable by the sources in the category, taking cost and other factors into account"). These are, of course, precisely the factors that a source will generally take into account in determining whether to employ averaging: a source may, for example, decide to undercontrol a Group 1 point because control of that particular point with reference control technology is prohibitively costly, because it will require excessive energy consumption, because it cannot be implemented by the deadline, or because it will impede the source's compliance with other environmental protection requirements (e.g., Clean Water Act requirements).

By allowing sources to take these statutory factors into account on a emission-point-specific basis, the emissions averaging proposal allows MACT to be fine-tuned to a far greater degree than is possible with any category-wide identification of reference controls. The emissions averaging proposal is accordingly not only entirely consistent with the statutory scheme, it helps to implement it more completely.

CMA anticipates that the use of emissions averaging will be limited to those instances in which compliance through the use of reference control technology is impracticable (for example, because of prohibitively high cost or extremely long lead times going beyond the three-year compliance period). CMA does <u>not</u> anticipate that emissions averaging will enable the industry to save money in comparison to EPA's projected costs for reference control technology. Instead, averaging will be employed primarily in those instances in which, due to special circumstances associated with a particular Group 1 point, the cost of reference control technology for that point is much in excess of the average relied upon by EPA in selecting that technology. Thus, CMA anticipates that averaging will not reduce costs below the average levels projected for reference control technology.

2. **<u>The Annual Compliance Period for Emissions Averaging Is Appropriate and Will Not Unduly Interfere With EPA's Ability to Enforce the Standard.</u>**

CMA strongly supports EPA's proposal that a source using emissions averaging be required to demonstrate a balance of debits and credits (including banked credits discussed in Section III.C.F.6. of these comments) on an annual basis, and also compliance with a quarterly emission limitation for those emission points in the average.

EPA states in the preamble at p. 62652 that the shortest period of time over which it will be physically possible to compute debits and credits is 30 days. CMA agrees that there will be many situations in which it will be simply impossible to compute debits and credits over periods shorter than 30 days. More importantly, it will require a compliance period of significantly longer than 30 days to make averaging a practical option, because of variability in operating conditions and rates. EPA's earlier draft HON rule would have required a monthly rolling quarterly average. This would have made averaging unusable because operating variability would place sources in constant jeopardy of noncompliance. The proposal is a major improvement and removes a roadblock.

The proposed rule would require exhaustive planning before any emissions averaging was put into place. Even with such plans, however, there will inevitably be fluctuations in emissions over short periods of time, due to normal fluctuations in operations. For example, the volume of production in a process unit with credit-generating emission points might be reduced for a few weeks due to reduced demand, raw material shortages, maintenance or operating problems. Likewise, quality problems in production from a debit-generating unit might require reprocessing or other activity generating unanticipated emissions, or the maintenance schedules for the two units might require shutdowns in different quarters. Also, normal production schedules are seasonal for many products. Sources will need time to even out credits and debits or make appropriate adjustments in their generation of credits and debits in order to ensure that the final result is in balance. An annual balance of credits and debits raises concern by some parties that emissions could be high for some shorter period. EPA's proposal to establish a quarterly limitation for emission points in the average should put those concerns to rest. CMA strongly supports an alternate that should satisfy those concerns, but also provides more opportunity for a source to further reduce emissions from the credit generating source.

There can be little dispute about EPA's authority to establish these compliance periods. Section 112(d) of the Act says nothing about the period over which the required emissions reductions must be achieved and demonstrated, whether over an hour, a day, a month, or a year. The quarterly and annual compliance periods proposed here are accordingly well within the Agency's discretion, as is the alternate quarterly limitation addressed in the preamble and strongly supported by CMA.

CMA agrees, moreover, that an annual compliance period would not unduly impede the Agency's ability to enforce the standard. The only potential area in which EPA's enforcement authority could be limited would be the imposition of administrative penalties under section 112(d) of the Act. Section 112(d) imposes a one-year statute of limitations on administrative penalties; hence an administrative penalty action instituted following the Agency's receipt of a report showing a failure to meet the annual compliance requirement could not seek penalties for the entire year. However, assuming that the Agency initiated the penalty action reasonably promptly, the period of "lost" penalties would be relatively insignificant.

The likelihood of a violation of the annual requirement would generally become apparent before the end of the annual period, the existence of the quarterly reporting requirement will allow the Agency to monitor the source's ongoing compliance and to move promptly if any substantial violation is anticipated. And, of course, <u>both</u> the annual and quarterly compliance periods will remain fully enforceable under section 113(b) and (c) of the Act, which provide for civil and, in appropriate cases, criminal penalties and have a longer statute of limitations.

EPA should accordingly adopt the proposed dual compliance period (annual and quarterly) approach in the final rule.

3. **The Limit on a Source's Quarterly Average Emissions Should Be Based on a Calculation of Total Allowable Emissions Rather Than a Percentage Range of Excess Debits.**

The proposed rule would require sources to ensure that the debits during any given quarter did not exceed credits by more than 25-35 percent. In the Preamble, EPA suggests that it is considering an alternative quarterly averaging provision that would instead require quarterly emissions to be no higher than a fixed cap. This cap would be based on the residual emissions that would have been allowed from points in the average if they operated at anticipated rates and conditions and had strictly conformed with MACT requirements by application of the reference control technology to the relevant Group 1 points. The cap, would thus replicate the emissions allowed under a strict application of MACT to all points in the average and would be established in the source's implementation plan or permit based on anticipated operations.

CMA believes that this "fixed cap" approach addressed in the preamble is superior to the "excess range" approach in the proposal. It has the virtue -- which is clearly advantageous from the standpoint of both environmental protection and economic efficiency -- of avoiding situations under which a source would have to continue operations of a credit generator (and its emissions) simply in order to generate those needed credits. It also has the virtue of not causing a source to be in violation in the event that a credit generating operation (and its emissions) is unavoidably curtailed for some part of the quarter. It would be bizarre if the rule resulted in a violation in such a situation when emissions were actually reduced.

The superiority of the "fixed cap" approach is illustrated by consideration of four examples described in Appendix R.

As these examples illustrate, the fixed cap approach satisfies the intended purposes of the quarterly average requirement, i.e., to preclude short-term spikes in emissions, while avoiding violations when a credit generating operation and its emissions are reduced during the quarter. Together, the annual average in the proposal and the quarterly limitation supported by CMA require that on an annual basis, emissions with averaging are no more than they would have been without averaging and that on a quarterly basis, emissions with averaging are no more than would have been allowed without averaging.

4. EPA Should Not Place Any Restrictions on Averaging of Emissions of Different Pollutants, So Long as the Pollutants Included in the Average Are Listed in Section 112(b) of the Act.

The proposed HON would not impose any restrictions on the averaging of emissions that are composed of different mixes of HAPs. Thus, for example, there would be no restriction on an average that balances the undercontrol of an emissions stream with hazardous pollutants X, Y, and Z with the overcontrol of a stream emitting hazardous pollutants X, Y, and Q.

This approach is entirely consistent with the statutory scheme. Section 112(d) of the Act requires MACT to be designed to control categories of sources, not particular pollutants. This was a substantial (and intentional) departure from the pre-1990 NESHAP program, which required EPA to promulgate regulations for the control of individual pollutants. See S.Rep. No. 101-228, 101st Cong, 1st Sess. 148 (1989) ("emissions limitations will apply to sources in a category . . . rather than to pollutants individually"). Under the amended statute, EPA is directed to promulgate emissions standards for categories of sources, with the resulting control requirements to apply to sources within a category regardless of the particular mix of HAPs emitted by each individual source. Thus, for example, the RCTs proposed in the HON would apply to all SOCMI sources, even though no two such sources emit precisely the same quantities and mixes of pollutants.

Within this context, there is no basis for limiting emissions averaging on the basis of the species of hazardous pollutants emitted from points included within the average (provided, of course, that the emissions being averaged are all HAPs as defined in section 112(b) of the Act). The mere fact that the level of control required for MACT is to be achieved through averaging rather than through the use of reference controls does not change the fact that the statute simply does not anticipate a differentiation of MACT requirements within a given source category based on the identities of the pollutants involved.

This interpretation is further supported by the legislative history of the 1990 amendments to the Act. The Senate Bill, S. 1630, would have required MACT standards to incorporate "the maximum degree of reduction in emissions of each air pollutant subject to this section ...." (Emphasis added.) This language was omitted from the final version of the bill as enacted. Thus, Congress rejected the Senate Bill's focus on reductions of each individual hazardous air pollutant in favor of an approach focussing on control of hazardous air pollutants in the aggregate.

The suggestion that "inter-pollutant" averaging should be restricted on the basis of an assessment of risk is particularly to be rejected, for two reasons. First, the statute does not anticipate that risk will be a factor in the establishment or implementation of MACT under section 112(d); indeed, the risk associated with emissions is conspicuously missing from the statute's list of factors to be considered in setting MACT.

Moreover, EPA does not have an appropriate scientific foundation on which to impose risk-based limits on inter-pollutant averaging. As EPA has acknowledged in other contexts, its data on the comparative risks associated with particular pollutants and mixes of pollutants is incomplete. Thus, even if risk-based restrictions on inter-pollutant averaging were appropriate, EPA simply does not have sufficient data to design and implement such restrictions.

As EPA points out in the preamble at p. 62646, the statute does not ignore risk; to the contrary, section 112(f) anticipates an entire second round of rulemaking -- after EPA has developed the appropriate data and methodology -- to address any residual risk that may remain after the implementation of MACT standards. As a result, as the preamble recognizes, sources have little incentive to use emissions averaging in a manner that would result in less risk reduction than strict application of reference control. Moreover, sources have other strong incentives to focus their control efforts on the most hazardous emissions in order, for example, to protect community and worker safety, to increase product safety, and to control pollution in other media.

Thus, EPA's proposal to allow averaging without additional restrictions should be adopted in the final rule. In addition, sections 112(i)(5) and 112(g) specifically call for some consideration of risk ("high risk pollutants" and "deemed more hazardous" respectively). However, section 112(d) does not and should not import those considerations where not authorized.

5. <u>No Discount Factor Should Be Applied.</u>

In the preamble at p. 62652, EPA suggests that it is considering the application of a discount factor of 0-20 per cent to any credits generated for purposes of an emissions average. No discount factor is appropriate in this situation.

A discount factor is inconsistent with the statutory intent that MACT be implemented in a flexible and cost-effective fashion. Assuming that EPA correctly identifies the appropriate level of control for MACT in the first place, there is no basis for imposing an additional "price" for allowing sources to achieve that level of control in the most efficient manner possible.

In considering this issue, it is important to recognize the important differences between the context in which emissions averaging is currently being considered and the situations in which it has primarily been addressed in the past. The Agency has previously considered emissions averaging primarily in the context of internal emissions offsets used by a source to prevent a change in its facility or operations from being treated as a "modification" subject to new source control requirements, such as LAER requirements under the nonattainment program. (The Agency's existing guidance on emissions averaging or "bubbling" is largely concerned with this issue.) In that situation, averaging is used, not to achieve the same reduction in emissions that LAER would require, but rather solely to ensure that emissions from the source, as changed, do not actually increase. Moreover, in the nonattainment context, the Agency has had to consider the impact that this form of "averaging" has, not just on the level of emissions control required for the source, but also on the area's overall progress toward attainment.

Under the HON, the use of offsets to determine whether new source requirements are triggered does not arise; that issue is being addressed in the Agency's separate rulemaking under section 112(g). Averaging is proposed to be used, not to escape control requirements, but to achieve them in a different way. Further, the Agency is not concerned here with a policy requiring ongoing reductions to achieve "reasonable further progress." MACT is a fixed control requirement that focuses on specific emissions reductions rather than progress over time. Thus, the policy considerations that have led to the use of a discount factor in the nonattainment context are not relevant here.

Nor can a discount factor be regarded as an appropriate "price" for savings gained through the use of averaging. As discussed above, CMA anticipates that averaging will be used for emission points for which the installation of reference controls is either impracticable or substantially more costly than EPA's models anticipate. As a general matter, averaging will not provide opportunities to avoid the normal costs of reference controls.

The only conceivable justification for a discount factor would be to address a concern that uncertainties in the averaging calculation could lead to an overall level of control that is less stringent than MACT. Yet the extreme detail with which EPA has specified the requirements for calculating an average and the increased monitoring and reporting makes it highly unlikely that any significant uncertainties will in fact exist. In fact, these extra requirements will result in more certainty--not less--for points in the average. Moreover, EPA has already built inherent conservatism into the emissions averaging rules.

Perhaps the most substantial area of conservatism is EPA's proposal not to allow credits for the operation of RCTs at efficiencies above the efficiencies required in the rule, except in limited circumstances. Preamble at p. 62649. It is beyond any reasonable dispute that in order to ensure compliance with the efficiencies established in the standard, most sources will endeavor to operate their reference controls in a manner that yields a margin of safety over the required efficiencies. As a result, many reference controls that are put in place in sources subject to the HON are expected to operate much of the time at efficiencies above the assigned efficiencies. A second area of inherent conservatism is provided by sources themselves. It is unlikely that any source will construct an average without a safety margin of excess credits--it simply would not be prudent to do so. Thus, these credits will be effectively "discounted" before the averaging calculation is even begun.

Moreover, as EPA accurately predicts, sources will control most points that are subject to the HON standard with reference controls rather than through emissions averaging. The unavailability of credits for overcontrols with RCT thus builds a discount factor into the standard itself. This built-in discount factor is alone more than adequate to compensate for any possible uncertainty in the calculation of emission credits and debits.

Finally, any significant additional discount factor will make emissions averaging, which is already very restricted under the proposed rule, much less useful. Since averaging is both environmentally and economically beneficial, any disincentive should be rejected. CMA submits that the restriction or loss of the averaging alternative will impose social and economic costs that far outweigh any marginal emission reduction to be derived from the imposition of a discount factor for the small number of emission points that would still use averaging.

Given the stringency of the proposed standard, there will not be many opportunities in the typical SOCMI facility to generate credits: control of Group 2 points, for example, will generate only a small number of credits, since those points are by definition the ones with the lowest emissions in the first place. Moreover, the sheer burden of the recordkeeping and reporting requirements that will be imposed on sources using averaging provides an additional disincentive to its use as a routine matter. As a result, sources will reserve averaging for those emission points for which reference controls are not practicable or for replacement of existing controls not quite meeting reference control efficiency since it is very costly for the marginal emission reduction to be achieved. The cost savings associated with the use of averaging for those points is potentially critical to individual sources, even if the actual number of points and quantity emissions involved are relatively small. At the same time, the environmental benefit of requiring a discount for this relatively small quantity of emissions is modest at best. The potential loss of these savings for such a small benefit argues strongly against any discount factor.

6. Sources Should Be Allowed to Bank Emission Credits, and Banked Credits Should Be Available for Use in a Quarterly Average in Certain Circumstances.

CMA supports the proposal to allow emissions credits to be banked and views this proposal as further evidence that EPA is trying to draft an averaging proposal that works and is good for all parties. Under EPA's proposal, banked credits would be available for use, in essence, only in "emergencies." The proposal would not allow banked credits to be used for planning purposes. Thus, for example, a source that is planning its balance of credits and debits for the coming year would not be able to include banked credits in the calculation. Instead, banked credits would be available only if the source, at the end of the year, discovered that fluctuations in operations (most likely in the fourth quarter), resulted in an unexpected imbalance of debits and credits.

The use of banking will increase the likelihood of success of any emissions averaging program and is environmentally neutral or beneficial in all cases and beneficial in most. In the absence of banking, any source that seeks to use averaging will run a constant risk that, no matter how well it balances credits and debits during the compliance period, unexpected events at the end of the period may throw the balance off. Banking provides a safety valve that allows sources to use averaging in good faith, while reducing the risk of unanticipated and unpreventable noncompliance by allowing the source to generate excess credits (environmentally beneficial) and using them if needed.

Virtually every source using averaging will generate extra credits for its own "rainy day fund" of credits. These credits will represent additional emissions reductions that are not otherwise required. Moreover, since banked credits will lapse after a set period (CMA proposes five years), this rainy day fund will have to be continually replenished. And, like most rainy day funds, in most years it will not be needed. The net effect will be a continuing generation of excess credits, the majority of which will never be used.

CMA urges EPA to consider expanding the permitted use of banked credits to the quarterly compliance period as well as the annual period. Although the quarterly period, as EPA has proposed it, will be more flexible than the annual period, thus reducing the likelihood of last-minute compliance problems, the potential for some such problems will still remain. Moreover, as discussed above, in Section III.F.3 of these comments, this proposed "excess range" approach has the disadvantage of promoting unproductive emissions from credit-generating sources. The "fixed cap" quarterly average approach suggested by CMA would reduce that problem, but would also provide considerably less flexibility. If this approach is used, therefore, some limited use of banked credits on a quarterly basis would be important to restore flexibility.

CMA appreciates the importance of not allowing significant spikes in excess debits during the quarterly period. However, this concern could be addressed by imposing restrictions on the use of banked credits for quarterly compliance purposes. Thus, for example, EPA could provide that no more than ten per cent of the credits used in computing the quarterly average be banked credits.

7. **Emissions Averaging Should Be Extended to All Emission Points Within the Source That Emit Hazardous Air Pollutants, Including Emission Points Not Included Within the SOCMI Source Category.**

There is no legitimate basis for restricting emissions averaging to emission points that are within the same source category. CMA strongly supports the suggestion in the preamble at p. 62646 that "cross-category" averaging is both authorized by the statute and appropriate as a policy matter.

There is perhaps no principle more firmly established under the Clean Air Act than EPA's discretion to define the term "source" in a flexible manner and even to define the term differently in different contexts. Chevron, U.S.A., Inc. v. NRDC, 467 U.S. 837 (1984); Alabama Power Co. v. Costle, 635 F.2d 323 (D.C. Cir. 1979). There is nothing in either the statute or its authoritative legislative history to indicate that Congress intended to create an exception to this discretion under section 112 of the Act.

The statute expressly authorizes EPA to define a "major source" for purposes of section 112 to include all operations and emissions that are within a contiguous area and under common control. Section 112(a). (The term "source" is not separately defined.) The Agency may also, of course, define the term to include a smaller grouping of emissions points. The question at hand involves the definitions to be adopted for purposes of sections 112(d) and 112(i) of the Act.

Section 112(d) requires EPA to promulgate MACT standards for the categories of "sources" listed pursuant to section 112(c). Section 112(i) then requires every "source" to comply with any MACT standards that are "applicable" to it according to a stated schedule. Importantly, section 112(i), unlike section 112(d), does not speak in terms of sources in a source category; it speaks only of "sources."

This statutory language leaves EPA free to adopt different definitions of the term "source" for purposes of section 112(d) and section 112(i). Thus, for example, for purposes of establishing MACT standards under section 112(d), EPA may define the "source" in the "source category" as including only SOCMI operations. The "source" that will be required to comply with those standards under section 112(i) may then be defined as any entire facility (within a contiguous area and under common control) to which the HON and other MACT standards are "applicable."

If this dual definition of source is adopted, there is nothing to bar the authorization of emissions averaging across emission points that are within the same section 112(i) source but in different section 112(d) source categories. So long as the section 112(i) source achieves the degree of reduction required by any and all MACT standards that are applicable to it -- either by controlling the emission points subject to each MACT standard through the reference control methods specified by that standard or through an emissions averaging scheme that achieves the same emissions reduction result -- it has satisfied both the letter and the intent of the statute.

Indeed, any other result would be completely contrary to common sense. So long as a facility achieves the reduction in emissions that is dictated by MACT, the environment does not "care" at which emission points within the facility those reductions are achieved. An interpretation of the statute that limits averaging between emission points within the same plant solely because those points have been placed in different "categories" would thus do nothing to promote the policies of the statute.

Naturally, all credits, no matter where derived, will have to satisfy EPA's standards of verifiability and accountability. However, so long as those standards can be met, sources should be allowed to derive credits from any point emitting HAPs located on the plant site.

It has been suggested that allowing averaging between emission points in different source categories could somehow run afoul of the MACT floor requirement. This concern is misplaced. The MACT floor is a criterion for development of the MACT standard and is not itself directly applicable to sources. (Section 112(i), for example, requires sources to comply with MACT, not with the MACT floor.) MACT standards must be fashioned to achieve a degree of reduction in emissions that is no less stringent than the floor; but once a MACT standard is established based on that and other pertinent criteria, the statute says nothing about how sources to which the standard is applicable are to go about complying with it.

Concerns about compliance with the floor requirement are particularly ill-placed where the emission points to be included in the average fall within source categories for which MACT standards have been promulgated. Where a facility is subject to two or more MACT standards, the overall degree of reduction that it must achieve will be the sum of the reductions required under those standards. Similarly, if the floor requirement applied directly to sources -- which it does not -- the "floor" for a given facility would be the sum of the floors for the source categories within which its various operations fell. (EPA has implicitly recognized the validity of this logic in its determination of the floor for the HON, which it has calculated based on a similar "summing" approach.) So long as the facility achieves an overall level of reduction for the aggregation of emission points that are subject to the various MACT standards, it has satisfied MACT -- and has, virtually by definition, achieved an overall degree of reduction that is consistent with the sum of the MACT floors for the source categories in which its operations fall.

Thus, at a minimum, EPA should allow emissions averaging to include all emission points that are within source categories that are subject to MACT. And as there is no logical reason to exclude emission points that are not yet subject to MACT (so long as the facility achieves the same overall degree of reduction that the existing MACT standards require), those points should be included as well. Indeed, as EPA points out in the preamble at p. 62648, the inclusion of these additional emissions points in an average could ultimately have the added benefit of increasing the stringency of the MACT standards that are ultimately promulgated for those points, since the addition of controls on those points will tend to increase the MACT floor for the source categories in which those points are classified.

In the preamble at p. 62647, EPA requests comment on the baseline that should be used to measure emission credits derived from emission points that are not currently subject to MACT standards. CMA suggests that EPA not attempt to specify detailed requirements in this area, but instead identify the basic criteria that sources will be required to satisfy before including such a point in an average. These criteria would be essentially the same as those required for overcontrols of Group 2 HON points: a measurement or reliable calculation of pre-control emissions, the identification of an assigned control efficiency for the controls to be installed (if such an efficiency has not previously been assigned), and verification of the installation and proper operation of the controls.

As for a temporal baseline, i.e., a specification of the earliest date that the controls could be installed in order to qualify for credit-generation, CMA does not believe that a baseline is generally appropriate for overcontrol of points that are within source categories for which MACT has been promulgated. However, for points that are within source categories for which MACT has not yet been promulgated, a baseline may be appropriate in order to provide the appropriate guarantees of efficiency and reliability, e.g., in the estimation of "pre-control" emissions. CMA suggests that an appropriate baseline for this purpose would be the date of enactment of the 1990 Amendments to the Act.

8. Sources Should Be Allowed to Include in an Emissions Average Emission Points Associated With New and Existing "Sources" Within the Same Plant

In the preamble at p. 62648, EPA requests comment on whether emissions averaging provisions of the proposed HON should allow averaging of emissions from new and existing sources. CMA is aware of no justification for a rule precluding averaging in this situation. Again, so long as the plant as a whole achieves the total level of reduction required by MACT -- including any increased level of reduction imposed because some grouping of emission points within the "major source" is classified as a "new source" under the separate rules that define that term -- it will be fully in compliance with the requirement under section 112(i) that it comply with all MACT requirements applicable to it.

It is not yet clear whether this is a real issue, because it is not yet entirely clear how EPA intends to define the term "new source" for this purpose. If, for example, EPA makes the term "new source" equivalent for this purpose with the term "source" as CMA proposes that it be used for purposes of section 112(i), there will never be any occasion to average new source emissions with those from another section 112(i) source. (It has not been suggested that EPA allow averaging to extend to emission points that are not within the same contiguous area and under common control, i.e., on the same plant site.

If EPA decides to define "new source" for this purpose as a source in a section 112(c) source category, e.g., all SOCMI operations within a contiguous area under common control, then the issue of averaging "new" and "existing" sources is logically indistinguishable from the issue, discussed in the previous section, of averaging across source categories. There is no separate reason to disallow averaging across points in different source categories merely because one of the sources is new and one is existing. As discussed above, the key requirement is simply that the total degree of reduction achieved by the source be consistent with that required by all applicable MACT standards.

The third possibility is that EPA will define "source" for purposes of identifying a "new source" as something less than the section 112(c) "source," e.g., as a new SOCMI process unit in an existing SOCMI plant. Even if this approach were adopted, so that the new process unit would be defined as a "new source" rather than as a "modification" (and hence subject to new source MACT requirements), the method used to determine the plant's total MACT obligation would not change: the plant would measure its total MACT compliance obligation under section 112(i) based on the level of emissions reduction required for its existing SOCMI process units plus the potentially more stringent reductions required for the new unit. So long as those reduction requirements can be identified and measured, there is no basis for excluding emission points within the "new source" from a facility-wide average.

CMA strongly opposes the suggestion at p. 62648 of the preamble that new and existing sources be made separate subcategories of SOCMI. Although the statute gives EPA considerable flexibility in defining categories and subcategories, it was clearly not Congress's intent that new and existing sources be divided up in this manner. To the contrary, Congress clearly intended source categories to be defined on the basis of types of operations and emissions and to include both new and existing sources. This is apparent, for example, from the organization of the section 112(d), which establishes requirements to be developed for "categories and subcategories" and then specifies special rules for new and existing sources within those categories and subcategories. This strongly indicates Congress's expectation that new and existing sources, although subject to different MACT standards, would be regulated within the same source categories. See also H. Rep. No. 490, Part 1, 101st Cong., 2d Sess. 328 (1990) ("For existing sources, the maximum achievable reduction in emissions may be less stringent than for new sources in the same category or subcategory . . . ." (emphasis added)).

9. Sources Should Be Allowed to Include Equipment Leaks in an Emissions Averaging Scheme

EPA proposes to exclude equipment leaks from eligibility for credits and debits in an emissions averaging scheme. This proposed exclusion is based on EPA's belief that emissions associated with the RCT for equipment leaks (which for some components